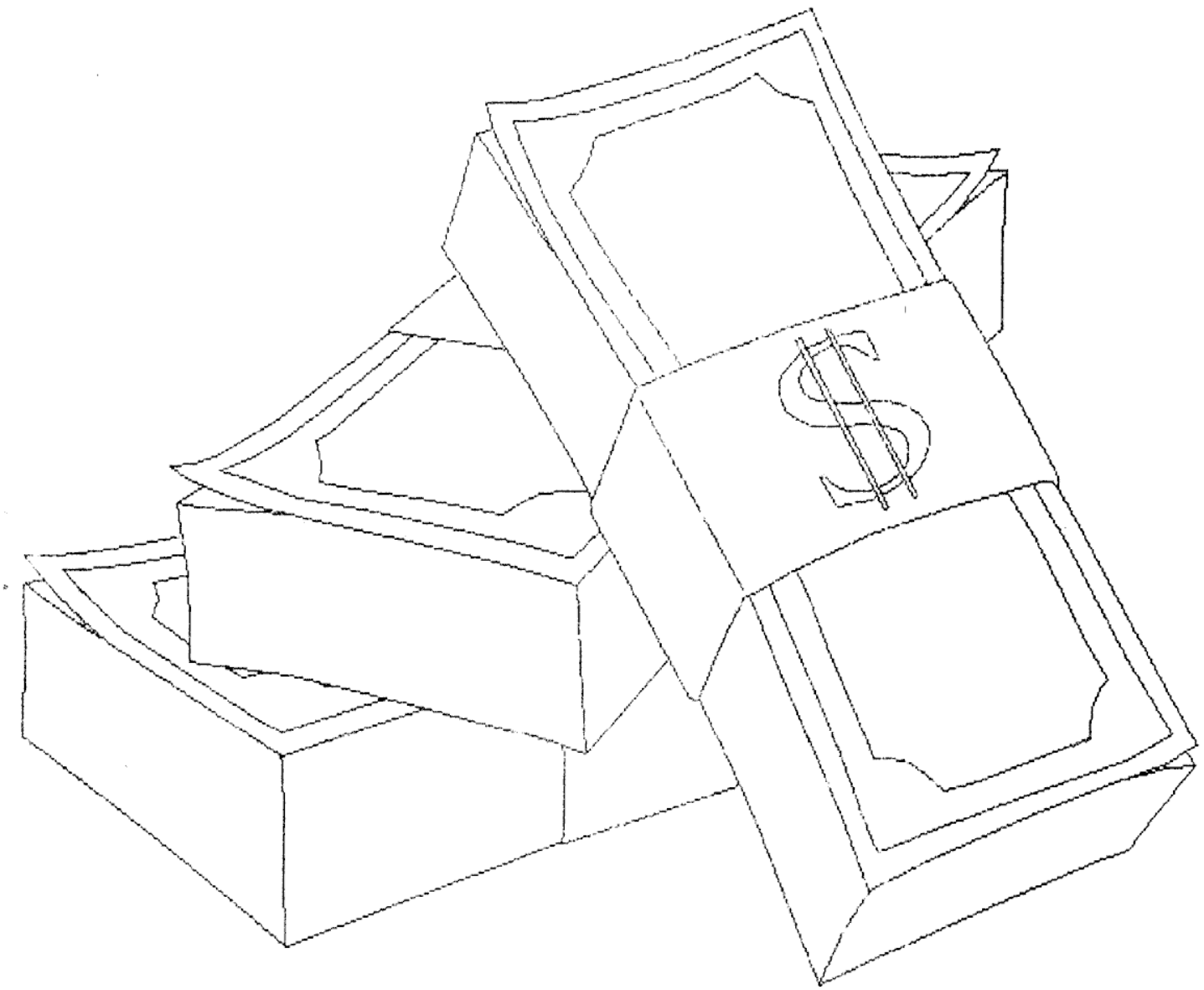
UPDATE MAGAZINE

$20 year/$5 single issue *October 1995*
Serving Sinclair Users Worldwide for the 9th Year
VALUE FOR YOUR MONEY IN COMPUTING



UPDATE MAGAZINE, P.O. BOX 17, MEXICO, IN 46958, USA

UPDATE COMPUTER SYSTEMS is edited by Frank Davis and published by Carol Davis of P.O. Box 17, Mexico, IN 46958 USA. The phone number is 317-473-8031 for both voice and fax. Normal hours for voice are 6 to 9 P.M. Tuesday thru Saturday. Please use the answering machine if we are not available, and leave a short, concise message with both phone number and address. The hours for faxing are from 11 P.M. to 6 A.M. Monday thru Sunday, and at other times if you let us know that we have a fax coming. Most answers to questions left on the machine will be by mail, as long distance charges are too costly for a small magazine to be expected to bear.

Mailing date of the magazine: all issues will be mailed out near the 20th of the months of October, January, April, and July. All mailings within the USA are by bulk mail and may take a few weeks to reach you at the most. Those wishing to have faster service may pay $4 extra for First Class Mail. The present rate for North America is $20 in US$; and 18 Pounds, or 40 DM in European currency, for a subscription. All issue years run from October to July of the next year, and those who subscribe during a year will get all of the issues for that year. In this way all subscriptions begin and end at the same time. Timely renewals are what keep us in business!

Assistance in publishing this magazine is provided by you the readers, many of whom have contributed news, articles and reviews. We offer you our heartfelt thanks. We are mainly assisted by our longtime friend, Eliad Wannum, Poet, Psychologist, and Sinclair computer user. In addition, regular contributors have been: Bill Cable, Paul Holmgren, Al Feng, Don Lambert, Bob Swoger, Abed Kahale, Peter Hale, A. E. Green, to name just a few. We invite you to submit material for publication to UPDATE MAGAZINE. Please make all hard copy (printed out) submissions Letter or NLQ; no draft print, or 2040 thermal print. The quality is too poor to print in a readable manner, and we do not have the spare time to re-type an article. If you do not have a printer capable of this, then send the article on disk to us as: Z88, IBM, QL, TS2068 in Oliger or Larken, or in an Amiga file. We can handle these disk formats. We can use 5.25 or 3.5 disks, in DSDD, HD or ED densities. Send two copies of hard copy. Do not submit stuff on audio tape, as we no longer have tape decks for the TS1000 or the TS2068. Try to avoid flowery or hard to read fonts, unless you are showing us sample output from a printer reviewed or a program. If artwork for an article is to be included, please let us know in what order you think it should be displayed. We can accept articles over the fax.

Those wishing to place ads in UPDATE MAGAZINE: We have two ways of handling ads. ONE, we will do reciprocal ads for other publications (generally on a year for year basis) with both of us exchanging copies of the issues the ads are placed in. TWO, the other way, is to purchase ad space from us, with the following rates in effect for now: $15 per quarter page; $25 per half page; and $40 per full page ad. This is per issue. For inclusion in all four issues, you pay for three issues in advance, and get the fourth issue free. For two issues you pay full rate for one ad, and get $5 off of the cost of the second ad rate. Should you have any questions on this please contact Frank Davis either by phone or mail, as listed above. All checks should be made out to UPDATE MAGAZINE.

We hope to be of service to you. Thank you for your support.

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We are now in our 9th year of publishing, and look forward to your renewal of your subscription. Perhaps you will even sign up a friend to make us even stronger. If you sign up two paid, new subscribers to UPDATE you will get your subscription at half price!

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EDITORIAL for October Issue by F.W. Davis

Once again I find that I have taken Text87 (word processor) in hand and churned out another issue of UPDATE Magazine. I have had many express that they wish for me to continue to publish UPDATE forever, or at least till they can no longer use their Sinclair computers. Others have said nothing. I once had a fairly wise man tell me that most people will never reach for what they want, but that all people can be reached. Only thing about that is that you will have to do the reaching.

We have been giving quite a bit of coverage to the Internet and modem communications in this and the last issue. I have done so, as I find, other than word processing, desk top publishing, and graphics use, etc.....the use of a modem with a computer is one of the most fun, educational and entertaining uses for the computer. Does that make sense? Well, when you get on the Internet there is very little limit to what you can find in the way of information. One thing to beware of is that just as it is so in print and on TV....just because it is there on your screen does not make it the truth. We have all read books, newspaper articles, magazines that had information in them that was later found to be untrue. The same holds true for info taken off of the Internet. It contains a wide amount of data on computing, art, music, literature, health, alternative health theories, odd ball facts, pictures, sound files, news, as well as the heartfelt outpourings of some lonely and confused people. In short it has all that life offers, only concentrated and available for you without leaving your home computer.

Almost all of what we have written so far applies to those with a QL. We have several programs that will allow you to access the Internet with a QL. The program Qualsoft is a terminal program with a VT100 terminal emulation that will work with what is called a SHELL (texts only, with upload and download capabilities, as well as E-mail) account. It is a commercial program. You can also access the net with QTPI, a public domain or shareware program that also gives you VT100 capability for your QL. It will require that you use it with the Pointer Environment. The third present choice for QL users is QLmosaic, a program ported over from the mainstream computers to allow one to access the net. It is with Italian documentation at this time, available from QBOX-USA.

I have heard from a few people that have told me by using the shareware program on our disk with the Z88 Source Book, that some providers have given them access to the Internet. If so, this is good, but you would need to have some more memory than the basic 32K, and the small screen size would be a hindrance. For a portable I can live with these for now. I do not look to see a full fledged web browser (graphics based Internet front end program) for the Z88 in the near future.

The weak place I really see for using the net is the TS2068 and the Spectrum. The terminal programs for them are really ancient compared to what is being used. 32 column is to my knowledge only supported on a few bulletin boards and CompuServe (I spent hundreds of hours in the 80s on CompuServe with my TS2068 and my TS1000). The other hold back is that 300 baud is supported by less and less BBSs and not at all by the Internet. We need at least 64 columns and at least 1200 baud, with 2400 being preferable. Anyone out there willing to program this? I do not have the time or programming skill. The TS2068 would definitely need more memory to use such a program. Here at Mechanical Affinity we still have some dock boards that can give you upto 128K more memory for bank switching. For those who have an Aerco Disk Interface with extra memory this will work. Those who have the Larken memory board should also be okay. For the rest, read some of the early years of UPDATE magazine on expanded memory for clues. It is not impossible to make the TS2068 able to get on the Internet, but it is up to you the users to come up with the way.

Last items I wanted to mention in this issue. Miracle Systems, due to parts scarcity and the new European Directive dealing with computer testing and specs, will be leaving the market. If you want a Super Gold Card or other item they produced, you better do so real soon. They will be making one last item, a QXL Gold board, mentioned in Al Fengs article this issue. It can be obtained from Miracle, or Mechanical Affinity (Al don't forget Mechanical Affinity) but must be prepaid and ordered by the start of December. If you want it, get it soon.

THE AUGUST DAYTON COMPUTERFEST- A REVIEW
by Frank Davis, Editor

Last weekend of August found Carol and I taking our usual trek to Dayton, Ohio for the Computerfest. This was the 6th year that UPDATE Magazine was going to be there. The lousy part of all this was that it was the *first* time that we were going without having tables in the flea market area of the show. We had no tables or tickets for the Sinclair computer related company we are associated with, Mechanical Affinity. For many years we had 4 to 6 tables a year. The tables were always in the same place. I had sent in our money and form before the deadline, and received back a note telling me they were totally booked up! I had let this problem be known to other users and to the folks of T/SNUG. Bob Swoger and Don Lambert of T/SNUG told me they thought they had one table and we could share it with them or use it. We hoped (wrongfully it turned out) that perhaps when we got there we could pick up some other tables. With all of this in mind it was with some dread that we made the 5.5 hour journey to our hotel rooms at the Red Roof Inn in Dayton (we had stayed there the last 5 years of going to the show). Many attempts had been made to Gary Ganger, leader of the Sinclair users in that group, and to the leader Bob Kwalter of DMA. Gary tried to help and at least offered us space at his computing museum booth to leave some flyers and catalogs. Bob never even returned email or messages left on his machine. We were not happy then, and months later are still not happy about the handling of this.

Now, to quit whining, on with telling about what happened while at the show. We arrived at the Hara Arena a little past 6 in the morning to set up. Paul Holmgren had brought tons of stuff for Sinclair users to buy. His van was loaded to the brim. We had restricted what we brought with us in our van to some back issues of UPDATE, subscription flyers, Mechanical Affinity catalogs, and half a dozen 14 gallon volume plastic carriers. Only the essentials and what I hoped would sell well. Many items were left behind. It did not take us long to set up one table and prepare to greet the customers. We owe a great debt of thanks to T/SNUG for selling us their space at the show, and to Don Lambert, who went and picked up dealer tickets for us the night before.

For the next two days we managed to sell much more in the way of TS1000, TS2068, QL and Z88 computers and supplies than I could have imagined. In this way the show went well. QL hardware such as the Qubide hard drive interface, Hermes and keyboard membranes. We also sold a number of Z88 computers and supplies for them. This is something I have noticed the last couple of shows we have done...Z88 use is up among Sinclair users. Knowing this has caused me to stock more software and hardware for them. We even had people who were never Sinclair users opt for buying a Z88. It seems that many people like the computer for use on the road and the fact that the batteries last far longer than the IBM type laptops (many are only 2-3 hours before you need to change batteries).

Gary Ganger and Tim Swenson were very active manning the DMA Computer Museum booth. It had many Sinclair items on display. I am not sure if this is the only computer with all of these available for people to view, but it certainly is a sight to see. It brought back many memories of learning to use computers in the early 80's. Somehow with the distance of time we tend to recall lots of the good times and forget the problems with software crashes, tape loading problems and hardware that tied each other up. Those were the pioneer days of computing. In many ways I feel a bit sad for the person who has only known a MAC or an IBM. Everything is so plug and play by comparison. It seems like such a small challenge compared to what we went through to learn how to use a computer. Many a scholar has said that the best part of a goal is the journey getting there (not an exact quote, but it conveys the idea). If they still have this museum up and running next year, take some time to thoroughly browse it. You will learn.

The only other tables set up to sell Sinclair related items were by Neal Schultz and Bill Heber-

lein of the Milwaukee users group. It was nice to see them once again and find out what uses they made of computers these days. We had known them since the days of the 1ST MIDWEST TIMEX/SINCLAIR COMPUTER FEST (we promised DMA not to use the term Computerfest for a show again as it is their intellectual property, but that is the name we gave that show back in 1986). They still have some active Sinclair users up in Wisconsin (we already knew that from those who subscribe to UPDATE Magazine).

On Saturday night, after the show closed for the day, most of the Sinclair users gathered over at Tim Swenson's house near Dayton for our annual cookout and get together. Most of us brought food or drinks to pitch in , and we all brought many stories, problems and ideas for the use of computers. When you listen to the conversation long enough I see that it would be hard not to learn something about computers just from sitting around at this cookout. When and if these get togethers end I will have many a good memory to hold on to.

Paul Holmgren livened up the cookout by holding what was almost like an auction of used Sinclair software and hardware, out of the back of his mini-van. He had backed it into the drive and for an hour or so, he pulled out item after item to see if anyone was interested in buying it at rock bottom prices. Three more events like this and perhaps all of our used stuff will be gone to new homes. Just as an aside on that....we are getting rid of ALL of our used QL, TS2068, and TS1000 stuff. When it is gone, I will not be restocking any of it. If you want it, get it while you can. I am not sure of what Pauls plans on this are, but after Christmas, I hope to have all of the used items I have sold.

Due to lack of space in this issue I am not going to list the many people who showed up at this computer show, or at the picnic. Some of the software they introduced me to and ideas from them will be in the next 2-3 issues of UPDATE. I will try to give credit to those folks where it is due. A sneak look at some of this is the improved TS2068/AERCO disk interface ROM that allows use of Spectrum mode, and the TS2068 emulator for the IBM. Both are from Keith Watson. He had done some work on both of these in previous years and continues to make some advances. Those who think that nothing new at all has come out for the TS2068, need to read the T/SNUG quarterly newsletter and pay better attention to what we have in UPDATE. The older computers may not be going at light speed, but they have not stood still.

Will we be back at the Dayton Computerfest for next years show? Not unless we see a change in whatever attitude was running the show this year. We want to go back, but at this time feel we were treated rudely by those who ran it. For the last 5 years we had, by means of our magazine, sales flyers, BBSs, etc....given lots of free promotion to this show and enjoyed it. This year left some of the old human feeling out and transformed it to a large extent into a Windows95 Show. We will still go to the show, but it is uncertain at this time if we will have booths there.

Now that I have laid to rest all of the good and bad of that show, let me end off with a few nicer notes. Because of no new updates and the non advertisement of Editor Special Edition from Digital Precision, we went looking for a program to replace it for QL users. We now have *ArcED* the professional Text-Editing -System for all QDOS compatible computers. It was originally developed for the THOR, a QL clone of years gone by. It even comes in a nice protective hard binder with velcro closure. Call Frank Davis at 317-473-8031 to see about getting a copy for only $28.

Something else new for the Larken TS2068 user. VERSION 6.0 of LOGICALL. is now apparently bug free and is Spectrum ROM compatible. This is the professional version and is available for $15, which includes the postage. This is available from UPDATE Magazine and from RMG. Though we have discontinued the Issue Disk concept (payments soon in the mail for the final settle-up with program authors!), we will from time to time make programs like LOGICALL available to you the user. Got something you need distributed that is of high quality for the TS1000, TS2068, Spectrum, QL, or for the Z88? Let us do it for you. We can be contacted via E-mail or the Internet at fdavis@holli.com. We have a World Wide Web page under construction at this location: "http://www.holli.com/~fdavis.html" for those with Internet access. Later, friends!

TS1000 TURBO

The whole idea of experimenting with a "Turbo Switch" came from reading the book "Explorer's Guide to the T/S1000" by Mike Lord. On page 58 of this book under the heading "Keyboard Scanning" he tells how the system variable MARGIN may be changed from 55 to 31 by taking pin 22 of the ULA chip HIGH or LOW. This is supposed to be of use to the computer manufacturer to enable the 1000 to be used in either the USA which uses 31 blank lines at the top and bottom of the screen, or in the UK which uses 55 blank lines. The book also states on page 53 under the heading "NMI Handler" that "When in the SLOW mode the ZX81 uses the time occupied by these blank lines to carry on with your program."

So I thought that if I increased the number of lines on my 1000, I might increase the speed of program execution. And it works well. I use direct video and have not tried it using the RF modulator, but if you use direct video I think you will have success from the modification.

To test the speed of program execution I use the following BASIC program.

```
10 FOR N=1 TO 500
20 NEXT N
30 PRINT "FINISHED"
```

With pin 22 HIGH the computer takes 20 seconds. With the pin LOW the program takes 28 seconds. This is a considerable increase in speed. One might ask "Why have a TURBO Switch?". Well, when I use my WORD* program at the "Turbo" speed the cursor blinks at about twice the normal rate and does not seem to miss keys as it did in the past, and when playing games I use the slower speed so that I can get a higher score!

When using the higher speed I find the monitor screen is filled with lines from top to bottom, when using the slow speed I find a blank screen at the top and bottom 1/2 inch of the screen. I can switch from "Turbo" to normal at any time without any crashes.

Lastly, how is the modification carried out? You have to take the T/S1000 circuit board out of it's case and locate resistor R30 which is located between the ULA chip and the regulator heat sink. It should have the colors Brown Black Brown (100Ohms).

Using a soldering iron, lift the left hand end of the resistor clear from the circuit board hole. Also locate resistor R38 which is four resistors down from R30, and solder one end of some two core cable to the left hand end of R38, which should be a 5V rail. To the raised left end of R30, solder one end of a 1K 1/4W resistor. Bend the resistor upwards and solder the other end to the right hand end of R34, which is a 0V rail. To the junction of R30 and the added 1K resistor solder a switch fo the single throw single pole type.

That completes the circuit board modification. Try connecting a multi meter at the solder connection between R30 and the 1K resistor, and ground. When the 1000 is powered up, the "Turbo" switch should change the voltage from nearly 0V to nearly 5V, and if you have your monitor connected you should see the screen flicker.

The switch should be mounted somewhere convenient, accessable from outside the T/S1000. I have my T/S1000 mounted inside a steel chassis and so I mounted the "Turbo" switch on the front panel with the words "TURBO" and "NORMAL" along side the switch. Try entering and running the program that I LISTed earlier and see the difference the switch makes.

Anthony W. Farrell

I hope anyone with a TS1000 can use this info!!!

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Jack Dohany 415-367-7781
627 Vera Ave
Redwood City, CA 94061 Oct 13, 1995

ANNOUNCING: The IKI (An IBM Keyboard Interface for 1000/2068)

I've been using my IKI and an IBM keyboard with my 2068 for seven years, and I love it. I've been wondering how to share the IKI with the Timex community, and have finally decided just to do it, however I can.

HISTORY
The IKI was designed in 1987 by a friend who has since retired from the Timex scene and now wishes to remain anonymous. I have his permission to publicize and/or reproduce his design however I wish. We owe him a debt of gratitude. I do not intend to profit from his design, but only to share it freely. I ask only payment for time/materials expended in the sharing process.

WHAT IT WORKS ON
The IKI can be used with the ZX80, ZK81, T/S 1000, T/S 1500, Spectrum and T/S 2068 computers. It is compatible with all interfaces for those computers. It cannot be used with the QL or Z88.

WHAT IT LOOKS LIKE
My IKI is a small (4.5" x 2.75") hand-wired board that plugs into the back of the computer like any other interface.
It has front and rear bus connectors, a wire-pair going to my disc system's +5 volt power supply, and a connector for the IBM keyboard cable plug. On the board are ten IC chips: nine small LS types, and one eprom. There are also a few capacitors.

THE IBM KEYBOARD
The IKI works with any IBM XT-compatible keyboard. The keyboard must have an XT/AT selector switch. The IKI won't work with "auto-sensing" keyboards which decide for themselves whether the computer is an XT or AT type.

WHY USE AN IBM KEYBOARD? It just feels good, that's why.
And if you wear it out, you can replace it.

HOW TO USE THE IKI
Just plug it in, and type away. You do not need to load any software. The IKI works with virtually all software: Mscript, Tasword etc etc. There are a few Spectrum games with which the IKI cannot be used: those which require the simultaneous pressing of two or more letter or number keys.

The IBM SHIFT key serves as our CAPS-SHIFT.
The IBM ALT key serves as our SYMBOL-SHIFT.
The IBM CTRL key serves as CAPS-SHIFT + SYMBOL-SHIFT.
The IBM ESC key serves as BREAK (Caps-shift + space)
The IBM numeric keypad serves as a numeric keypad only.

The IBM function keys 1 to 10 serve as shifted 1 to 0.
Therefore it's best to use an IBM keyboard which has its function keys above the numeric keys, rather than grouped on the left side.

THE FLY IN THE OINTMENT

The IKI works admirably with word processors and other application software. It can be a pain in the keester to use when writing or editing BASIC programs, since the Sinclair keywords do not appear on the IBM keyboard. There are four possible solutions:

1. Use the native keyboard for BASIC editing, or
2. Use a chart or list showing keys and keywords, or
3. Memorize such a chart, or
4. Use my KEYWORD V2.0 program which lets you type in keywords letter by letter.

Solution 4 is the one I usually use when editing BASIC.

HOW TO GET AN IKI

Ah, now we come to the hard part: sharing it. I see three possible schemes:

1. I build one for you, or
2. You build your own with my help, or
3. We as a group make a PC board, or have one made.

SCHEME ONE is not economically feasible. It would cost you about $240! That's because it takes about 20 hours to hand-wire an IKI board. If you're willing to pay that much, I'll be happy to build you an IKI if and when I find the time. If you have more time than money, and construction skills, you might prefer Scheme Two.

SCHEME TWO possibilities:

1. Send me a self-address stamped envelope. I'll send you the IKI schematic and eprom contents. You will have to buy all hardware (about $30) and program your own eprom. This info could also be published in any magazine or newsletter that wishes to devote numerous pages to it.

   -- Self-Addressed envelope NOT NEEDED for items 2 to 4 --

2. For $10 I'll send you the items listed above, plus complete construction details, and a pre-programmed eprom.

3. FOR $40 I'll send you the items listed above, plus all needed parts EXCEPT the rear-connector finger board which I am unable to obtain. (If you know of a source for finger boards, please let me know!)

4. KEYWORD V2.0 is in the public domain. A disk containing it would cost $5.

SCHEME THREE: Let me know how you can help, with time, skill or money, in the production of an IKI PC board. If enough people are interested, it may be possible to produce an IKI PC board. Self-addressed stamped envelopes appreciated!

Best Regards,

Jack Dohany

THE INTERNET: THE LINGO

Like any community, the Net has developed its own language. What follows is a glossary of some of the more common phrases you'll likely run into. But it's only a small subset of net.speak. You an find a more complete listing in "The New Hacker's Dictionary," compiled by Eric Raymond (MIT Press). Raymond's work is based on an online reference known as "The Jargon File," which you can get through anonymous ftp from ftp.gnu.mit.ai.mit as jarg300.txt.gz in the pub/gnu directory (see chapter 7 for information on how to un-compress a .gz file).

ASCII — Has two meanings. ASCII is a universal computer code for English letters and characters. Computers store all information as binary numbers. In ASCII, the letter "A" is stored as 01000001, whether the computer is made by IBM, Apple or Commodore. ASCII also refers to a method, or protocol, for copying files from one computer to another over a network, in which neither computer checks for any errors that might have been caused by static or other problems.

ANSI — Computers use several different methods for deciding how to put information on your screen and how your keyboard interacts with the screen. ANSI is one of these "terminal emulation" methods. Although most popular on PC-based bulletin-board systems, it can also be found on some Net sites. To use it properly, you will first have to turn it on, or enable it, in your communications software.

ARPANet — A predecessor of the Internet. Started in 1969 with funds from the Defense Department's Advanced Projects Research Agency.

backbone — A high-speed network that connects several powerful computers. In the U.S., the backbone of the Internet is often considered the NSFNet, a government funded link between a handful of supercomputer sites across the country.

Baud — The speed at which modems transfer data. One baud is roughly equal to one bit per second. It takes eight bits to make up one letter or character. Modems rarely transfer data at exactly the same speed as their listed baud rate because of static or computer problems. More expensive modems use systems, such as Microcom Network Protocol (MNP), which can correct for these errors or which "compress" data to speed up transmission.

BITNet — Another, academically oriented, international computer network, which uses a different set of computer

instructions to move data. It is easily accessible to Internet users through e-mail, and provides a large number of conferences and databases. Its name comes from "Because It's Time." "

Bounce What your e-mail does when it cannot get to its recipient -- it bounces back to you -- unless it goes off into the ether, never to be found again.

Command line On Unix host systems, this is where you tell the machine what you want it to do, by entering commands.

Communications A program that tells a modem how to work. software

Daemon An otherwise harmless Unix program that normally works out of sight of the user. On the Internet, you'll most likely encounter it only when your e-mail is not delivered to your recipient -- you'll get back your original message plus an ugly message from a "mailer daemon.

Distribution A way to limit where your Usenet postings go. Handy for such things as "for sale" messages or discussions of regional politics.

Domain The last part of an Internet address, such as "news.com."

Dot When you want to impress the net veterans you meet at parties, say "dot" instead of "period," for example: "My address is john at site dot domain dot com."

Dot file A file on a Unix public-access system that alters the way you or your messages interact with that system. For example, your .login file contains various parameters for such things as the text editor you get when you send a message. When you do an ls command, these files do not appear in the directory listing; do ls -a to list them.

Down When a public-access site runs into technical trouble, and you can no longer gain access to it, it's down.

Download Copy a file from a host system to your computer. There are several different methods, or protocols, for downloading files, most of which periodically check the file as it is being copied to ensure no information is inadvertently destroyed or damaged during the process. Some, such as XMODEM, only let you download one file at a time. Others, such as batch-YMODEM and ZMODEM, let you type in the names of several files at once, which are then automatically downloaded.

EMACS A standard Unix text editor preferred by Unix types that beginners tend to hate.

E-mail Electronic mail -- a way to send a private message to somebody else on the Net. Used as both noun and verb.

Emoticon See smiley.

F2F Face to Face. When you actually meet those people you been corresponding with/flaming.

FAQ Frequently Asked Questions. A compilation of answers to these. Many Usenet newsgroups have these files, which are posted once a month or so for beginners.

Film at 11 One reaction to an overwrought argument: "Imminent death of the Net predicted. Film at 11."

Finger An Internet program that lets you get some bit of information about another user, provided they have first created a .plan file.

Flame Online yelling and/or ranting directed at somebody else. Often results in flame wars, which occasionally turn into holy wars (see).

Followup A Usenet posting that is a response to an earlier message.

Foo/foobar A sort of online algebraic place holder, for example: "If you want to know when another site is run by a for-profit company, look for an address in the form of foo@foobar.com."

Fortune cookie An inane/witty/profund comment that can be found around the net.

Freeware Software that doesn't cost anything.

FTP File-transfer Protocol. A system for transferring files across the Net.

Get a life What to say to somebody who has, perhaps, been spending a wee bit too much time in front of a computer.

GIF Graphic Interchange Format. A format developed in the mid-1980s by CompuServe for use in photo-quality graphics images. Now commonly used everywhere online.

GNU Gnu's Not Unix. A project of the Free Software Foundation to write a free version of the Unix operating system.

Hacker On the Net, unlike among the general public, this is not

a bad person; it is simply somebody who enjoys stretching hardware and software to their limits, seeing just what they can get their computers to do. What many people call hackers, net.denizens refer to as crackers.

Handshake Two modems trying to connect first do this to agree on how to transfer data.

Hang When a modem fails to hang up.

Holy war Arguments that involve certain basic tenets of faith, about which one cannot disagree without setting one of these off. For example: IBM PCs are inherently superior to Macintoshes.

Host system A public-access site; provides Net access to people outside the research and government community.

IMHO In My Humble Opinion.

Internet A worldwide system for linking smaller computer networks together. Networks connected through the Internet use a particular set of communications standards to communicate, known as TCP/IP.

Killfile A file that lets you filter Usenet postings to some extent, by excluding messages on certain topics or from certain people.

Log on/log in Connect to a host system or public-access site.

Log off Disconnect from a host system.

Lurk Read messages in a Usenet newsgroup without ever saying anything.

Mailing list Essentially a conference in which messages are delivered right to your mailbox, instead of to a Usenet newsgroup. You get on these by sending a message to a specific e-mail address, which is often that of a computer that automates the process.

MOTSS Members of the Same Sex. Gays and Lesbians online. Originally an acronym used in the 1980 federal census.

Net.god One who has been online since the beginning, who knows all and who has done it all.

Net.personality Somebody sufficiently opinionated/flaky/with plenty of time on his hands to regularly post in dozens of different Usenet newsgroups, whose presence is known to thousands of people.

Net.police Derogatory term for those who would impose their standards on other users of the Net. Often used in vigorous flame wars (in which it occasionally mutates to net.nazis).

Netiquette A set of common-sense guidelines for not annoying others.

Network A communications system that links two or more computers. It can be as simple as a cable strung between two computers a few feet apart or as complex as hundreds of thousands of computers around the world linked through fiber optic cables, phone lines and satellites.

Newbie Somebody new to the Net. Sometimes used derogatorily by net.veterans who have forgotten that, they, too, were once newbies who did not innately know the answer to everything. "Clueless newbie" is always derogatory.

Newsgroup A Usenet conference.

NIC Network Information Center. As close as an Internet-style network gets to a hub; it's usually where you'll find information about that particular network.

NSA line eater The more aware/paranoid Net users believe that the National Security Agency has a super-powerful computer assigned to reading everything posted on the Net. They will jokingly (?) refer to this line eater in their postings. Goes back to the early days of the Net when the bottom lines of messages would sometimes disappear for no apparent reason.

NSF National Science Foundation. Funds the NSFNet, a high-speed network that once formed the backbone of the Internet in the U.S.

Offline When your computer is not connected to a host system or the Net, you are offline.

Online When your computer is connected to an online service, bulletin-board system or public-access site.

Ping A program that can trace the route a message takes from your site to another site.

.plan file A file that lists anything you want others on the Net to know about you. You place it in your home directory on your public-access site. Then, anybody who fingers (see) you, will get to see this file.

Post To compose a message for a Usenet newsgroup and then send it out for others to see.

Postmaster The person to contact at a particular site to ask for information about the site or complain about one of his/her user's behavior.

Protocol The method used to transfer a file between a host system and your computer. There are several types, such as Kermit, YMODEM and ZMODEM.

Prompt When the host system asks you to do something and waits for you to respond. For example, if you see "login:" it means type your user name.

README files Files found on FTP sites that explain what is in a given FTP directory or which provide other useful information (such as how to use FTP).

Real Soon Now A vague term used to describe when something will actually happen.

RFC Request for Comments. A series of documents that describe various technical aspects of the Internet.

ROTFL Rolling on the Floor Laughing. How to respond to a particularly funny comment.

ROT13 A simple way to encode bad jokes, movie reviews that give away the ending, pornography, etc. Essentially, each letter in a message is replace by the letter 13 spaces away from it in the alphabet. There are online decoders to read these; nn and rn have them built in.

RTFM Read the, uh, you know, Manual. Often used in flames against people who ask computer-related questions that could be easily answered with a few minutes with a manual. More politely: RTM.

Screen capture A part of your communications software that opens a file on your computer and saves to it whatever scrolls past on the screen while connected to a host system.

Server A computer that can distribute information or files automatically in response to specifically worded e-mail requests.

Shareware Software that is freely available on the Net. If you like and use the software, you should send in the fee requested by the author, whose name and address will be found in a file distributed with the software.

.sig file Sometimes, .signature file. A file that, when placed in your home directory on your public-access site, will automatically be appended to every Usenet posting you write.

.sig quote A profound/witty/quizzical/whatever quote that you include in your .sig file.

Signal-to-noise ratio — The amount of useful information to be found in a given Usenet newsgroup. Often used derogatorily, for example: "the signal-to-noise ratio in this newsgroup is pretty low."

SIMTEL20 — The White Sands Missile Range used to maintain a giant collection of free and low-cost software of all kinds, which was "mirrored" to numerous other ftp sites on the Net. In the fall of 1993, the Air Force decided it had better things to do than maintain a free software library and shut it down. But you'll still see references tothe collection, known as SIMTEL20, around the Net.

Smiley — A way to describe emotion online. Look at this with your head tilted to the left :-). There are scores of these smileys, from grumpy to quizzical.

Snail mail — Mail that comes through a slot in your front door or a box mounted outside your house.

Sysadmin — The system administrator; the person who runs a host system or public-access site.

Sysop — A system operator. Somebody who runs a bulletin-board system.

TANSTAAFL — There Ain't No Such Thing as a Free Lunch.

TCP/IP — Transmission Control Protocol/Internet Protocol. The particular system for transferring information over a computer network that is at the heart of the Internet.

Telnet — A program that lets you connect to other computers on the Internet.

Terminal emulation — There are several methods for determining how your keystrokes and screen interact with a public-access site's operating system. Most communications programs offer a choice of "emulations" that let you mimic the keyboard that would normally be attached directly to the host-system computer.

UUCP — Unix-to-Unix CoPy. A method for transferring Usenet postings and e-mail that requires far fewer net resources than TCP/IP, but which can result in considerably slower transfer times.

Upload — Copy a file from your computer to a host system.

User name — On most host systems, the first time you connect you are asked to supply a one-word user name. This can be any combination of letters and numbers.

VT100 — Another terminal-emulation system. Supported by many communications program, it is the most common one in use on the Net. VT102 is a newer version.

WANTED / FOR SALE, etc...

1) Please send list of Timex items for sale. Looking for I/O for TS1000 and TS2068, Zebra Talker for TS2068, NOV RAM (SCRAM bd), and eprom burner. Contact Robert Gene Schimke, 1005 Westwind Circle, Placentia, CA 92670, phone 714-630-2488.

2) Help! Could someone find me a copy of WINDOW PRINT for the TS2068, on cassette. Robert L. Gilbert III, 12A Nathan Road, Waltham, MA 02154.

3) FOR SALE: Two TS tape recorders , made for the TS2068 and TS1000, etc. The same color and style as the TS2068. Works fine, but I have not used tape on a regular basis for years and it needs a good home that will put it to use. The price is $10, plus $3 for shipping and handling ($5 if outside of the USA). This is the price for one, both can be had together for $19, and $4 for shipping. Send check or cash or money order to: Eliad Wannum, c/o UPDATE Magazine, P.O. Box 17, Mexico, IN 46958 USA. I also have for sale, to a collector or tinkerer in QL items: 2 Schoen replacement Keyboards for the QL that are in need of some minor soldering. $12 each, plus $4 for shipping. I also have two anti-bounce chips to replace the 8049 on the QL, for those with some keyboard bounce who do not want to go to the HERMES chips. $6 each.

4) FOR SALE: TS computers (1000, 1500, 2068), 2040 printers, A&J microdrives (1000, 2000), AERCO printer interface, Larken Disk System for the TS2068, misc. hardware (winkyboard, memory modules, etc.) lots of software (1000, 2068), books (TS & Spectrum), magazines. Good prices; if I have what you want it can be yours! Contact: Mike Stephens, 312 Newton Ave., Oakland, CA 94606- 1320.

5) I no longer use my Timex/Sinclair systems and I wonder if you know of anyone who would like to have them for free, except for shipping charges. Here in NJ I have a TS2068 computer, a 2020 recorder, a 2050 modem, a supply of ink cartridges for the Olivetti PR2300 inkjet printer, an Olivetti PR2300 printer that needs service, an AERCO parallel interface and several manuals (2068 Profile, MSCRIPT, HOT-Z, etc.). In another location (Puerto Rico) I have a T/S 2068 computer, a T/S 2040 printer, a ZX-81 computer. Also a complete technical manual for the TS2068. I should also add that all but the printer are in working condition. Kenneth George, 140 Kingsland Rd., Boonton, NJ 07005, Phone 201-334-2314.

6) HELP NEEDED: I have a copy of QMOSAIC (for the QL computer), a non-graphical Internet Web Browser. The DOCs are in Italian. I need someone who can read Italian and is willing to do some translation to English. I will then make this available to English speaking QL users. Contact: Frank Davis, c/o UPDATE Magazine, P.O. Box 17, Mexico, IN 46958, or call during early evenings, Tuesday thru Saturday to 317-473-8031. Also looking for any other Internet or comm programs for use with the Internet or BBSs for QL, Z88 and the TS2068.

READ Reads the next item in the DATA list and assigns it to the specified variable in the READ list.

Format: READ *var* [,*var* ...]

Example: *line* READ A,X,C$

REM Nonexecutable statement that permits remarks to be placed in the statement.

Format: REM remark

Example: *line* REM MY PROGRAM

RESTORE Resets the data list to the beginning or to a specific line for use by the next READ statement.

Format: RESTORE [*line*]

Example: *line* RESTORE 200

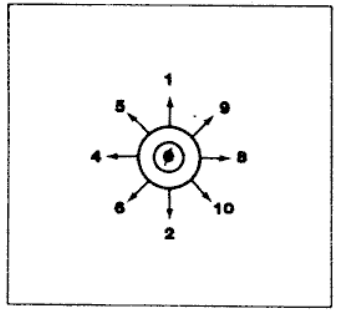
STICK Returns the position of a device connected to the computer's joystick port and whether or not its pushbutton was pushed.

Format: STICK (*device, player*)

where: *device* -1 is joystick
device 2 is pushbotton
player 1 is left joystick
player 2 is right joystick

Results returned

Pushbutton Status	Value Returned
Being pushed	1
Not being pushed	0
Joystick Values Returned	



STOP Halts execution with report code 9. CONT will resume execution with the following line.

Format: STOP

Example: *line STOP*

Note: If the cursor is in quotes, you must delete the left quote before STOP entered or it will be interpreted as a string and will not stop the program.

INPUT/OUTPUT CONTROL

INPUT Suspends program execution and waits for the user to enter a value that will be assigned to a variable in the variable list. If a prompt string is included, the string will be displayed.

Format: INPUT ["*Prompt*";] *var* [*var* ...]

Example: *line* INPUT "Cost = ";C

LPRINT Sends a line of text to the printer

Format: LPRINT [AT *n,m*] [TAB *m*] [*list*] {[,] [;] ['] }

where: *n* denotes line, $0 \le n \le 21$
m denotes column, $0 \le m \le 31$

Note: Only column number has any effect. See PRINT for effect of TAB, COMMA, SEMICOLON, and APOSTROPHE. Printer prints a line

1. After an LPRINT statement that does not end in a comma or a semicolon.
2. When a comma or TAB requires a new line to be started.
3. At the end of the program, if there is anything "left over" to be printed
4. Any time the print buffer reaches 32 characters in length.

Example: *line* LPRINT TAB 2;X,TAB25;Y

OUT Writes the byte *n* to "port address" *m* external to the computer's memory.

Format: OUT *m,n*

where: $0 < m \le 65535$
$-255 \le n \le 255$

Example: *line* OUT 255,62

PRINT Outputs values to the display file for display on the television.

Format: PRINT (AT *n,m*) (TAB *m*) (*list*) {[,] [;] ['] }

where: *n* denotes line, $0 \le n \le 21$
m denotes column, $0 \le m \le 31$

AT Moves PRINT position to the line and column specified.

TAB Moves PRINT position to the column specified.

[,] COMMA Moves the beginning of the next item to be displayed to position 0 on the next line.

[;] SEMICOLON Continues display immediately after previous output displayed.

['] APOSTROPHE Moves the print position to the beginning of the next line.

Example: *line* PRINT TAB10;X;Y;Z$

AUDIO CONTROL

BEEP Sounds a note through the computer's loudspeaker for the number of seconds specified *exprnm*$_1$. The pitch is specified by *exprnm*$_2$. The pitch is the number of semitones above middle C if a positive number is specified or below if a negative number is specified.

Format: BEEP *exprnm*$_1$, *exprnm*$_2$

where: $0 < exprnm_1 \le 10$ (duration in seconds)
$-69 \le exprnm_2 \le 69$ (pitch values)

Pitch Values (*exprnm*$_2$)

Example: *line* BEEP 5,0

SOUND Controls 3-channel sound synthesizer by placing an appropriate value into up to 15 registers.

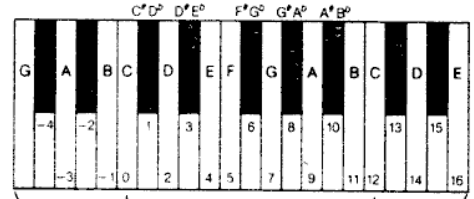
Format: SOUND *register, value* [,*register, value* ...]

Register Chart for Sound

Register	Function	Values
0	Finetune, Channel A	0-255
1	Coarsetune, Channel A	0-15
2	Finetune, Channel B	0-255
3	Coarsetune, Channel B	0-15
4	Finetune, Channel C	0-255
5	Coarsetune, Channel C	0-15
6	Noise (Higher value = lower frequency)	0-31
7	Enable (Subtract from 63 to enable) Tone: A = 1 B = 1 C = 4 Noise: A = 8 B = 16 C = 32	0-63

Register	Function	Values
8	Amplitude Channel A	0-15
9	Amplitude Channel B	0-15
10	Amplitude Channel C (value 16 enables envelope)	0-15
11	Finetune envelope period	0-255
12	Coarsetune envelope period	0-255
13	Envelope shape (Add to zero to Enable) Hold 1 Alternate 2 Attack 4 Continue 8	0-15

Note: Attack 4 causes sound to swell to peak amplitude. Attack 0 causes sound to decay to zero amplitude. Alternate 2 causes attack pattern to alternate. Hold 1 Limits the period to 1 cycle of either attack or decay. Sound then remains at peak or zero volume until new command changes it. Continue 0 Causes value of other 3 parameters to last for 1 cycle and volume to drop to zero. Continue 8 Causes other 3 parameters to repeat until terminated.



Tune Values For the Musical Scale

| | | |

COLOR CONTROL STATEMENTS (continued)

INK Sets the color of the printed characters and symbols to be displayed on the screen.

Format: INK color#

Example: line INK 0
line PRINT INK 1; "WELCOME"

Note: If used as a command the result is not visible until something is printed. When used in a program line, INK selects a color that remains until changed by a subsequent line or the computer is turned off. If used in an INPUT or PRINT statement, it changes the INK only in that statement.

PAPER Clears the screen of any information and sets the screen color. If enter is pressed again the paper color will be set and print will appear.

Format: PAPER color#

Examples: PAPER 7
line PRINT PAPER 1; "HELLO"

Note: In a program line, PAPER takes effect only when something is printed. If used in an INPUT or PRINT statement, it changes the PAPER color only in that statement. When specified as a command, the entire screen is changed to the new color when ENTER pressed twice. Paper color extended to entire screen after a CLS command or after an ENTER to recall the program listing to the screen.

GRAPHICS AND VIDEO CONTROL

BRIGHT Sets the brightness of characters subsequently displayed.

Format: BRIGHT *exprnm*

where:

Value of *exprnm*	result
0	normal
1	bright
8	transparent

Example: line BRIGHT 1

CIRCLE Draws an arc of a circle centered at x-coordinate, y-coordinate, with the specified radius.

Format: CIRCLE [INK color#]
x-coordinate, y-coordinate, radius

Example: Line CIRCLE 125,90,30

DRAW: Draws a line from the current plot position moving $exprnm_1$ pixels horizontally and $exprnm_2$ pixels vertically. If $exprnm_3$ specified, it turns through an angle specified by it.

Format: DRAW [INK color#,] $exprnm_1$, $exprnm_2$[, $exprnm_3$]

Example: line DRAW 50,50

FLASH Defines whether characters will be flashing or steady

Format: FLASH *exprnm*

where:

exprnm	result
0	steady
1	flash
8	no change

Example: line FLASH 1

INVERSE Causes the dots in each 8-by-8 character grid to be reversed so that those that were INK become PAPER and vice versa.

Format: INVERSE *exprnm*

where:

exprnm	result
0	Normal video as INK color on PAPER color.
1	Inverse video as PAPER color on INK color.

Example: *line* INVERSE 1

OVER: Controls overprinting for characters subsequently displayed.

Format: OVER *exprnm*

where:

exprnm	result
0	Characters obliterate previous characters at that position.
1	New characters are mixed in with old characters.

Example: OVER 0

PLOT: Places a small dot on the screen at the pixel coordinates defined by *x-coordinate* and *y-coordinate*; if *color#* not specified, the current INK color is used; if *color#* specified, the dot is displayed in that color.

Format: PLOT [INK color#] *x-coordinate, y-coordinate*

where $0 \le color\# \le 9$
$0 \le exprnm_1 \le 255$
$0 \le exprnm_2 \le 175$

Example: line PLOT INK 3; 50, 60

BASIC FUNCTIONS

FUNCTION FORMAT AND DESCRIPTION

ABS *exprnm* Returns the absolute value of a number.

ACS *exprnm* Returns the Arccosine of an angle of *exprnm* radians.

ASH *exprnm* Returns the Arcsine of an angle of *exprnm* radians.

ATN *exprnm* Returns the Arctangent of an angle of *exprnm* radians.

ATTR *(x,y)* Returns a decimal number between 0 and 255 which can be broken down to reveal the INK and PAPER color of the specified display position and whether it is bright or flashing.

If number ≥ 128 position flashing
If number < 128 position not flashing
If number − 128 = 64 position bright
If number − 128 < >64 position not bright

BASIC FUNCTIONS (continued)

Subtracting 64 from number determines INK and PAPER colors as follows:

Color	Ink	Paper
Black	0	0
Blue	1	8
Red	2	16
Magenta	3	24
Green	4	32
Cyan	5	40
Yellow	6	48
White	7	56

Example: If number − 64 = 0, both INK and PAPER are black. If number − 64 = 21, PAPER is red, INK is cyan.

CHR$ *exprnm* Returns the character (string value) whose code is *exprnm*.
Normally $32 \le exprnm \le 255$.

CODE *expr$* Returns the code of the first character in the string or 0 if the string is empty.

COS *exprnm* Returns the Cosine of an angle of *exprnm* radians.

EXP *exprnm* Returns the base of the natural logarithm (e) raised to the specified power.

FREE *none* Returns the number of bytes available for BASIC programs and variables.

IN *exprnm* Reads from a "port address" external to the T/S 2068's memory.
$0 \le exprnm \le FFFFh$.

INKEY$ *var* Receives one character from the keyboard representing the key pressed, else the empty string.

INT *exprnm* Returns the integer part (always rounded down) of a number.

LEN *expr* Returns the length of the specified string.

LN *exprnm* Returns the natural logarithm of the specified number.

PEEK *memadr* Returns the decimal value of the specified memory location.

PI Returns 3.14159265, which is the circumference in inches of a circle one inch across.

POINT *(x,y)* Returns 1 if a pixel at (x,y) is INK color, 0 if it is PAPER color.

RND Returns a random number between 0 (which value it can take) and 1 (which it cannot).

SCREEN$ *(n,m)* Returns the character on the screen at line n, column m. Gives the empty string if the character is not recognized.

SGN *exprnm* Returns + 1 if *exprnm* is positive, − 1 if negative, and 0 if its value is zero.

SIN *exprnm* Returns the Sine of an angle of *exprnm* radians.

SQR *exprnm* Returns the square root.

STR$ *exprnm* Converts a numeric value to a string.

TAN *exprnm* Returns the tangent of an angle of *exprnm* radians.

USR *exprnm* Calls the machine code subroutine whose starting address is *exprnm*.

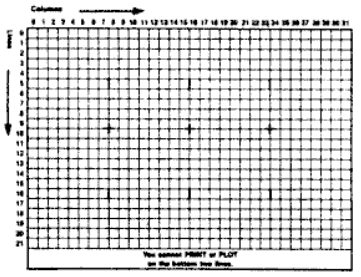
VAL *expr$* Evaluates a numeric expression without its bounding quotes as a numeric expression.

VAL$ *expr$* Evaluates a numeric expression without its bounding quotes as a string expression.

CHARACTER GRAPHICS

Permits characters to include letters, digits, punctuation marks, and graphic symbols to be displayed in any of 704 distinct locations (32 columns and 22 lines) on the screen.

SCREEN FORMAT



DISPLAY STATEMENTS

line PRINT [AT *n,m*][TAB *m*] [Attribute;] [list] { [,] / [;] / ['] }

line INPUT [attribute;] ["*prompt*";] *var* [,*var* ...]

attributes to consider

attribute	attribute paramters
BRIGHT	0, 1 or 8
FLASH	0, 1 or 8
INK	*color#*
INVERSE	0 or 1
OVER	0 or 1
PAPER	*color#*

GRAPHIC SYMBOLS

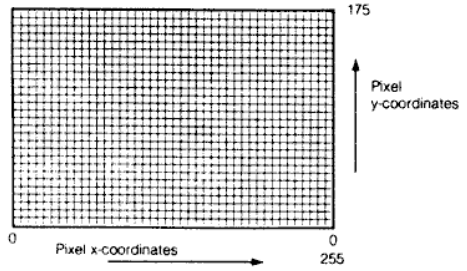
Graphic symbols on the numeric keys are obtained by pressing CAPS SHIFT and 9 to enter Graphics mode. Then press the numeric key to display the graphic symbol on that key.

Symbol	Numeric Key	Symbol	Numeric Key
	0		5
	1		6
	2		7
	3		8
	4		9

PIXEL (PICTURE ELEMENT) GRAPHICS

Permits individual points to be colored in any of 45,056 distinct locations (256 x-coordinates and 176 y-coordinates) on the screen using the PLOT statement. Also permits circles and lines to be drawn using the CIRCLE and DRAW statements.

SCREEN FORMAT



DISPLAY STATEMENTS

line CIRCLE [INK color#;] *x-coordinate, y-coordinate,* radius
line DRAW [INK color#;] *x-coordinate, y-coordinate,* angle
line PLOT [INK color#;] *x-coordinate, y-coordinate*

TIMEX SINCLAIR 2068 REPORT CODES

CODES	MEANING
0	OK
1	NEXT without FOR
2	Variable not found
3	Subscript wrong
4	Out of memory
5	Out of screen
6	Number too big
7	RETURN without GOSUB
8	End of file
9	STOP statement
A	Invalid argument
B	Integer out of range
C	Invalid string
D	BREAK-CONT repeat

CODES	MEANING
E	Out of DATA
F	Invalid file name
G	No room for line
H	STOP in input
I	FOR without NEXT
J	Invalid I/O device
K	Invalid color
L	BREAK into program
M	RAM TOP no good
N	Statement loss
O	Invalid string
P	FN without DEF
Q	Perimeter error
R	Tape loading error

England, home of my favorite computers. Where else could the ZX80, ZX81, Spectrum, QL and the Z88 have come from? Besides a great deal of our American heritage, language, etc....we also owe them a debt for the most fun to learn and use computers of this century. IBMs, MACs, Amigas all have their place, but none of them were Sinclairs! This is a page of History for electronics!

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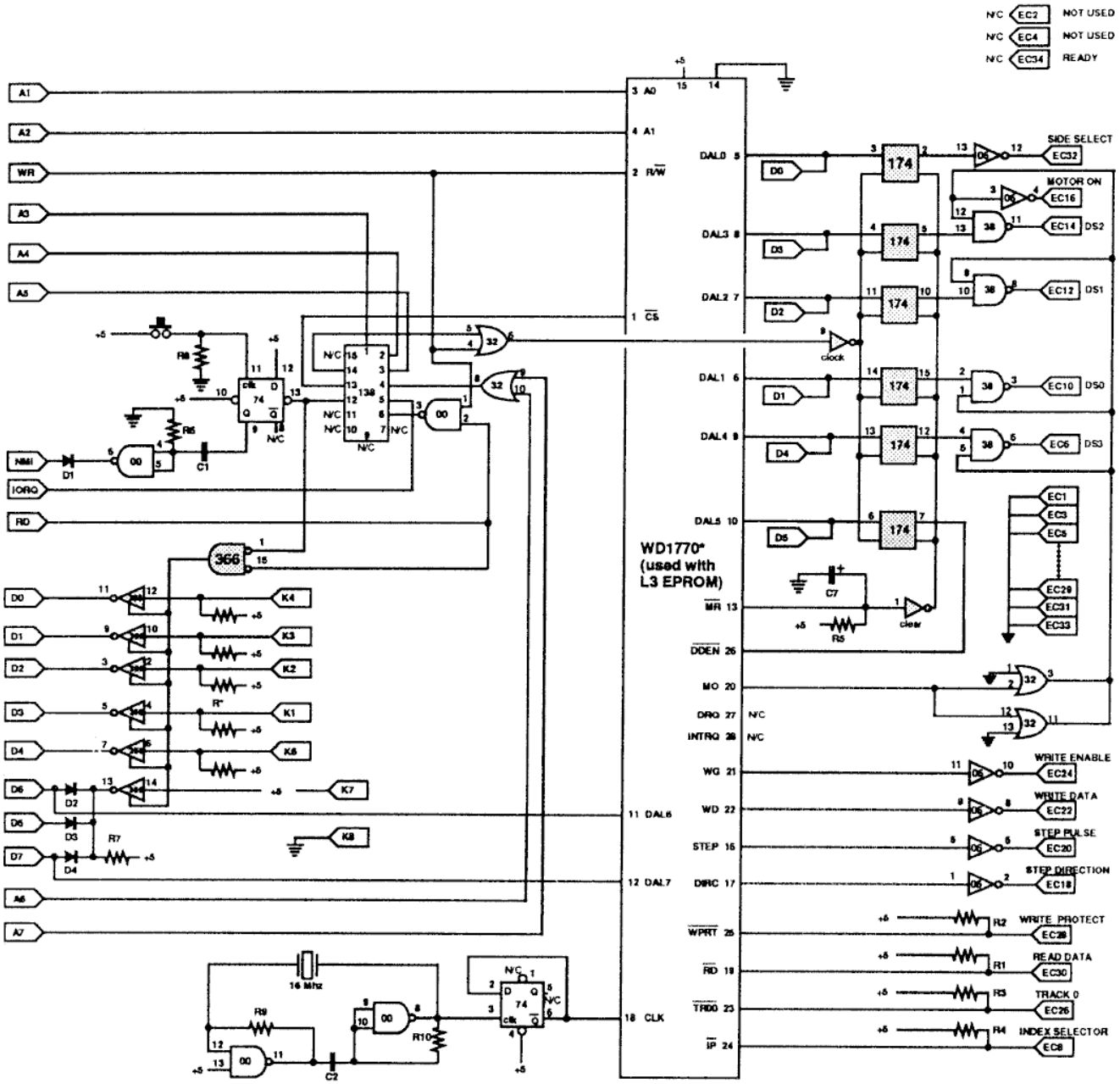
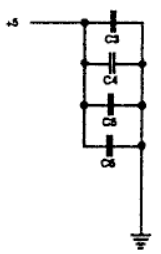
LARKEN 2068 DISK INTERFACE



filter capacitors



between 00 & 74

between 32 & 1770

between 1770 & 7406, 7438

between 174 & disk connector

component	marking	value
R1,R2,R3,R4	R-BK-BN	200Ω
R5,R6	BN-GY-R	1800Ω
R7,R8	BN-BK-R	1000Ω
R9,R10	Y-V-BN	470Ω
R*		391 x 5 SIP
C1	102	.001µF
C2	471	.00047µF (470pF)
C3,C4,C5,C6	104	.1µF
C7	22µF, 10v	
diodes	1N4148	

chips

WD1770*	74LS00	7406
74HCTLS32	7438	74LS74
74LS138	74HCTLS174	74LS366

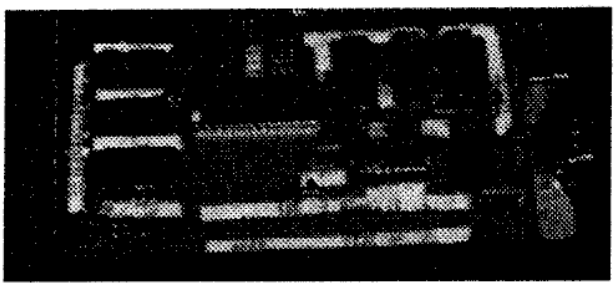
16 Mhz crystal

* or WD1772
(used with L3f EPROM)

94-08-22

Home-made 2068 LarKen Disk I/F

Les Cottrell



The two pictures at the right are of a working home-made LarKen disk I/F. It was built to verify that the attached schematic is accurate. A dock board (not pictured) has been in use for about two years and the I/F board for about a year. The dock board schematic appeared in the October '94 UPDATE!.

The reason that the dock board has been in use so much longer is because I tried to substitute some of the chips on the I/F board. The circuits are designed to use **ONLY** the chips called out. Some magic having to do with signal voltage levels I am told.

The I/F circuit was built on Radio Shack 276-192 circuit board because it has an edge connector that has .1 spacing built in. I didn't have the proper computer edge connector for the 2068 so I used a salvaged TS-1000 rampack connector. Since 2068 64 position connectors are becoming hard to find a little ingenuity will be required if you try to build one of these. I have noticed that IBM PC card slots are 62 position and since both 32T and 32B are ground (which is available elsewhere) I will probably salvage some from a junked XT for my future hardware projects. Another observation is that later model IBMs use a different end connector for the drive data cable. You could use a perf board without the fancy edge connector and replace it with the IBM style connector and cable.

The next figure shows the component layout on the-192 board. It follows the general layout of the original LarKen board. The DB-9 Kempston connector is omitted and the NMI pushbutton shown as schematic symbol for clarity. All components are mounted on the component side EXCEPT the computer edge connector which is on the solder side. Wire-wrap wire was used for hook-up wire for all connections. (Refer to the dock board article for hints on using wire-wrap wire.) Carefully route the stripped wire-wrap wire thru the hole with the edge connector pin before soldering. The schematic alone can be used to build the unit, or the list on the next page. In any case it would be wise to make a copy of the schematic and verify your work using an ohmmeter or continuity tester. Mark every connection with a highlighter as you check, and when you are finished the picture will be completely "colored".The Kempston pull-ups on the LarKen were in a 391x5 SIP. The layout shows 5 separate (440 ohm) resistors. The only other substitution made was an HCT32 chip in place of the HCTLS32

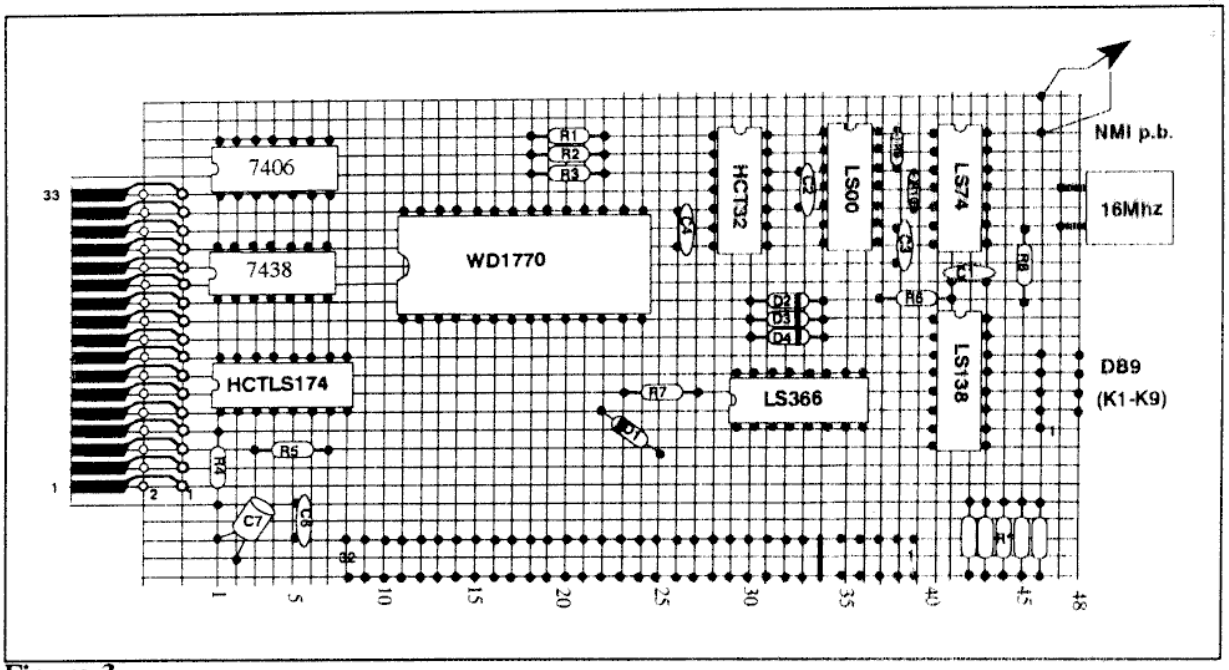


Figure 3

Here is a point-to-point wiring list that should be useful. Abbreviations in the first position are: T=Top row of 2068 edge connector; B=bottom row of 2068 edge connector; K=Kempston connector; EC=disk drive data Edge Connector; R=resistor; C=capacitor; D=diode; digits are the significant chip number.
The last position: L=left; R=right; T=top; B=bottom; a digit is a pin number

+5 volt connections:
From B-4 to pull-ups(R*) common to 138-16 to K-7 to NMI button-T to 74-14, -12,-10, -4 to C3-T to 00-14, -13 to 366-14, -16 to R7-R to C4-T to 1770-15 to R1,2,3-L to C5-T to 06-14 to 38-14 to 174-16 to R5-L to R4-B to C6-T.

Ground connections:
From B-8 to B-7 to 138-8 to 366-8 to 138-8 to K-8 to R8-B to R6-L to74-7 to C3-B to 00-7 to 32-7 to C4-B to 1770-14 to C5-B to 06-7 to 38-7 to 174-8 to C6-B to C7-T(-) to EC-1 thru EC-33(odd numbers only).

(D7) T4 to 1770-12 to D4-R
(D0) 366-11 to T7 to1770-5 to 174-3
(D1) 366-9 to T8 to 1770-6 to 174-14
(D2) 366-3 to T9 to 1770-7 to 174-11
(D6) T10 to 1770-11 to D2-R
(D5) D3-R to T11 to 1770-10 to 174-6
(D3) 366-5 to T12 to 1770-8 to 174-4
(D4) 366-7 to T13 to1770-9 to 174-13

(NMI) T15 to D1-B
(IORQ) T18 to 138-5
(RD) T19 to 366-15 to 00-2
(WR) T20 to 1770-2 to 32-4 to 00-1

(A1) B11 to 1770-3
(A2) B12 to 1770-4
(A3) B13 to 138-1
(A7) B22 to 32-9
(A6) B23 to 32-10
(A5) B24 to 138-3
(A4) B25 to 138-2

EC-6 to 38-6
EC-8 to R4-T to 1770-24
EC-10 to 38-3
EC-12 to 38-8
EC-14 to 38-11
EC-16 to 06-4
EC-18 to 06-2
EC-20 to 06-6
EC-22 to 06-8
EC-24 to 06-10
EC-26 to 1770-23 to R3-R
EC-28 to 1770-25 to R2-R
EC-30 to R1-R to 1770-19
EC-32 to 06-12

XTAL-T to 74-3 to R10-B to 00-8
XTAL-B to R9-T to 00-12

NMI-button-B to R8-T to74-11
138-13 to 1770-1
1770-13 to R5-L to 174-1 to C7-(+)
366-1 to 138-12 to 74-13
138-4 to 32-8
C1-R to 74-9
1770-18 to 74-6, -2
R9-B to 00-11 to C2-T
R10-T to 00-10, -9 to C2-B
C1-L to R6-R to 00-5, -4
1770-16 to 06-5
1770-17 to 06-1
1770-21 to 06-11
1770-22 to 06-9
R*-1 to K-6 to 366-6
R*-2 to K-4 to 366-12
R*-3 to K-3 to 366-10
R*-4 to K-2 to 366-2
R*-5 to K-1 to 366-4
06-13 to 174-2
38-2 to 174-15
38-13 to 174-5
38-10 to 174-10
32-11, -3 to 38-9 to 06-3 to 38-12, -5, -1
174-12 to 38-4
1770-26 to 174-7
138-6 to 00-3
32-6 to 174-9
138-14 to 32-5
D1-T to 00-6
32-12, -2 to 1770-20
R7-L to 366-13 to D4-L to D3-L to D2-L

I would be glad to correspond with any one that is ambitious enough to attempt to build one of these. It was a rewarding project and was done because someone wanted to see what the schematic looked like. The companion project to building a "home-made" LarKen outfit was the complete disassembly of the cartridge EPROM code which appeared during the last year of Sinc-Link.

Les Cottrell 108 River Heights Drive Cocoa, FL 32922-6630 407-632-7670

****

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CABLE COLUMN

By Bill Cable

ARCHIVE SERIES
PART 22 : ERROR HANDLING IN ARCHIVE WITH ERRNUM() FUNCTION and ERROR COMMAND

I write commercial software in the ARCHIVE programming language. Much of our computer usage involves storing and retrieving information and a database is a good place to store such information. A nice structured database language as found in ARCHIVE makes it a natural place to write programs to handle information. But one requirement of any language that is to be used to write well behaved programs is a way to handle errors. Such things as detecting when a device can't be written to or when a file can't be located. ARCHIVE has the necessary tools for dealing with such errors so the program can take the appropriate action or at least warn the user about the error. Below I will give some examples of how errors work including several little error procedures that you can include in your ARCHIVE programs to make them better able to recover from errors. In order to work through the examples start up your QL and start ARCHIVE. A couple of the examples will put ARCHIVE in loops that can't be broken out of so be prepared to reboot.

UNTRAPPED ERRORS IN ARCHIVE

Normally when an error happens in ARCHIVE you are given an error message number and a description. The number can be looked up in the error section of the ARCHIVE chapter of your QL manual for more detail. If the error occurs within a procedure you will also see the procedure name and the statement within the procedure where the error occurs. This works very well while developing a programs as the error messages are generally pretty clear and since you see the statement where the error occurs you can usually immediately find the error, start the editor, make the correction, and be on your way. This is much easier and faster for program development than with a compiled language which requires recompiling and linking and the error statements are often cryptic.

Try these errors :

new<ENTER>	clear everything
1<ENTER>	"1" is not a command
print a<ENTER>	"a" has not been defined
print ((2*3)/5<ENTER>	incomplete parenthesis

Now try an error in a procedure

edit<ENTER>	start the editor
proc1<ENTER>	first procedure
proc2<ENTER>	call second procedure
<ESC>	exit proc1 edit
<F3>n<ENTER>	create new procedure
proc2<ENTER>	call it proc2
print "hello"<ENTER>	okay statement
print world<ENTER>	will cause error
<ESC>	exit proc2 edit
<ESC>	exit editor

Now start procedure at the ARCHIVE prompt.

proc1<ENTER>

Notice that "hello" was printed from procedure proc2 but when the second print statement was reached the error caused the program to halt and you see the offending procedure name and the statement in it where the error occurred plus the error description and number. You can immediately start the editor and correct the statement.

edit	start the editor
<TAB>	move to proc2 procedure
2<DOWN ARROW>	move to statement with error
<F5>	edit statement
{insert " around 2 so it reads print "2"}	
<ENTER>	accept correction
<ESC>	leave editor
proc1<ENTER>	see it is okay now

This is all well and good for program development but sometimes you want to catch the errors before they cause the program to halt and deal with them within the program. An example would be if you prompted for a database name. If you mistype the name it would be better to catch the error within the program and reprompt rather than have the program halt and then have to restart it. In fact in a commercial program you would want to trap every error so the user would never be confronted with a halted program. How to do this will be covered below.

THE <ESC> KEY

First we should discuss the <ESC> key as it is used by ARCHIVE. When pressed it is usually interpreted as a special error which will halt any running ARCHIVE program. It is simply a way to stop a program. As mentioned each error in ARCHIVE has a number. <ESC> is called Error 27 which also happens to be the same as the ASCII code for the <ESC> key. This means that most of the time when you are running an ARCHIVE program and press the <ESC> key you will cause the program to halt due to Error 27.

At the ARCHIVE prompt try pressing <ESC> and you will see "<ESC>" displayed on the screen. For an example of <ESC> not causing an error try this at the ARCHIVE prompt :

print code(getkey())<ENTER> set GETKEY for input

1	display 1 ASCII code
<F5><ENTER>$	display $ ASCII code
<F5><ENTER><ESC>	display <ESC> code
<F5><ENTER>a	display a ASCII code

This first line is a command line program which uses the GETKEY() function (see description under functions in manual) to wait for a key to be pressed and then will display the ASCII code of the key pressed. The second line inputs the "1" character to GETKEY and you see the ASCII code of "1" which is 49 appear in the upper screen. The next line recalls your last line which is the getkey function you just entered then you enter it and press "$" and you see the ASCII code for "$" namely 36 appear on the screen. The next line does the same only your press <ESC> and instead of causing an error it is accepted and the ASCII code for <ESC> namely 27 is displayed on the screen. The last line does the same for "a". So you see that the GETKEY() function will not recognize <ESC> as an error but merely treats it as a key press like any other.

To show how this might be used in a procedure start the editor and enter this procedure which is a loop. You may have to reset your QL to halt the loop.

new<ENTER>	clear everything
edit<ENTER>	start the editor
loop<ENTER>	procedure name
while 1<ENTER>	start of endless loop
print code(getkey())<ENTER>	getkey function
endwhile<ENTER>	end loop
<ESC>	exit procedure
<ESC>	exit editor

Now start the procedure at the ARCHIVE prompt.

loop<ENTER>	start procedure

Try pressing any key and you will see the ASCII code on the screen. The <ESC> key will not halt the procedure. Pressing it as fast as possible won't do it either but if I hold the key down so it auto-repeats it may be fast enough to halt the program. Presumably this causes the <ESC> to happen fast enough to occur during the print part of the procedure and so can be intercepted by ARCHIVE and the program is halted. I am using a Gold Card but a SuperGold Card may be so fast that the loop can't be broken.

Let us try another type of loop which under certain circumstances can't be halted by <ESC> :

new<ENTER>	clear out any procedures
edit<ENTER>	start editor
loop2<ENTER>	new procedure name
let i=1<ENTER>	counting variable
while 1<ENTER>	start of endless loop
print i<ENTER>	print loop counter
let i=i+1<ENTER>	increment counter
endwhile<ENTER>	loop end
<ESC>	exit procedure
<ESC>	exit editor

Now start the loop and let it go a while then halt it with <ESC>.

loop2<ENTER>	start procedure
<ESC>	halt it after a while

Now try this. You will find it can't be stopped.

loop2<ENTER>	start procedure
<SPACE BAR>	a non<ESC> character
<ESC>	try to abort

I think you will find there is no way to to break this loop. This shows an oddity of ARCHIVE. Pressing any character other than <ESC> on a running procedure can block ARCHIVE from recognizing <ESC> at a later time. ARCHIVE must only look at the first character of the waiting input buffer which is not <ESC>.

Other times when <ESC> does not immediately work are when ARCHIVE is doing an internal task that takes a long time such as ordering or selecting on a big file. When the task is done it will then halt but not immediately. As you can see <ESC> is a mixed blessing. It is nice to be able to halt a program but is doesn't work 100% of the time and if the <ESC> is hit by mistake it can halt a program when you don't want it to.

ERRNUM() FUNCTION

ARCHIVE has a function which returns the number of the last error that has occurred. Like all ARCHIVE functions it has parenthesis to indicate it is a system function but like many ARCHIVE functions there is nothing needed within the parenthesis since no arguments are needed for this function. ERRNUM() just returns an integer number which can be looked up in the error list in the manual. If a zero is returned then no error has yet occurred. Once an error has occurred then ERRNUM() continues to return that error number until another error occurs.

Let us see what how it works.

print errnum()<ENTER>	see current value
errnum()<ENTER>	an error (1)
print errnum()<ENTER>	see error now 1
<ESC>	<ESC> error 27
print errnum()<ENTER>	error now 27
new<ENTER>	clear everything
print errnum()<ENTER>	last error not cleared

Why was the 2nd statement above an error? Well

errnum() just returns a number so it would be the same as typing something like :

```
5<ENTER>                error
```

You will notice that once an error has occurred then errnum() will continue to return the value of that error until a new error has occurred even if you clear out any procedures and variables with the NEW command. How do you reset the value to zero (no error)? See below.

ERROR PREFIX COMMAND

ARCHIVE has an error command which is used in front of a procedure name when you call a procedure. It will cause you to return to the statement right after the ERROR statement if an error occurs within the procedure instead of halting the program. For example if you want to have a procedure to prompt for a database name and then LOOK at the database then you can use the ERROR statement as a prefix when you call the procedure and then right after the call check for an error with ERRNUM(). If no error occurred then you can assume the LOOK worked and you can go on but if an error occurred then deal with it in the program. When you use ERROR on a procedure and no error occurred then ERRNUM() gets reset to 0. Let us set up an example and make sure to have a copy of gazet_dbf on flp1_ .

```
new<ENTER>              clear everything
edit<ENTER>             start the editor
main<ENTER>             name for first procedure
print "MAIN"<ENTER>      print statement
error looker<ENTER>     use error on looker procedure
if errnum()<ENTER>      check for error
print "Unable to access flp1_";f$<ENTER>
print "Error = ";errnum()<ENTER>
main : stop<ENTER>       redo procedure
endif<ENTER>            end of error checking
print count()<ENTER>    print record count
close<ENTER>            close
<ESC>                   exit main
<F3>n                   make new procedure
looker<ENTER>           procedure name
input "File to look at : ";f$<ENTER>
look "flp1_"+f$<ENTER>
<ESC>                   exit editing looker
<ESC>                   exit editor
```

Now let us see how it works.

```
main<ENTER>             start program
xyz<ENTER>            bad file name
```

An error should have occurred when the looker procedure tried to look at file "xyz". You are given the error messages and asked to reenter the file name.

```
gazet_dbf<ENTER>        good file name
```

Did everything work as expected or did you have any unexpected errors. If you had a typo error in looker you would not get an detailed error message about it. The ERROR command blocks normal error messages and make debugging difficult. To see this let us put an intentional bug in looker.

```
edit<ENTER>             Start the editor
2 <DOWN ARROWS>         go to last statement in looker
<F4>                    insert mode for looker
bug<ENTER>              error line
<ESC>                   get out of insert mode
<ESC>                   get out of editor
main<ENTER>             start program
gazet_dbf<ENTER>        good file name
```

Notice we still have an error because of the bad line we put in looker but we can't tell what it is because our ERROR prefix to looker in main keeps the program from crashing. We can see the number of the error in our message in main but we can't see the offending statement. Let us remove the ERROR prefix from the looker call so we can see our "bug".

```
close                   file still accessed
edit<ENTER>             start editor
<TAB>                   move to main procedure
2 <DOWN ARROW>          move to error looker
<F5>                    edit call to looker
{remove "error" so line just reads    looker}
<ENTER>                 accept corrected line
<ESC>                   exit editor
main<ENTER>             start program
gazet_dbf<ENTER>        enter database name
```

Now we see the offending line with our "bug" in it. You may find when you are designing a program and are trapping errors you will have to remove some ERROR prefixes until you get your own bugs out of the program. Let us remove the "bug".

```
close : edit <ENTER>    close file and start editor
3<DOWN ARROWS>          move to bug
<F3>c<ENTER>            cut line
```

SOME HANDY ERROR PROCEDURES

I have developed several useful procedures using the error features of ARCHIVE and will list and describe them now.

FILE CLOSING

When an ARCHIVE program is first started you can't be sure if any files are already open from any previous work. To be completely safe it is best to close any open or looked at files. How can this be done when you don't even

know what their logical name may be? In ARCHIVE if 2 files are open then one of them is always active. If you use the CLOSE command then the active one will be closed and the other will become active then you can close that one. This works even if you don't know the file name or logical name. So to make sure all files are closed simply make a loop to close files and it will keep closing files until none are left open and then an error will occur. But if you used the ERROR prefix when you called the closing procedure then the error will not halt your program and you can go on an confidently assume all files are closed.

```
proc close_all
   while 1 : close : endwhile
   endproc
```

To use it simply put the line :

```
error close_all
```

in your program. Be aware that always after you call close_all that errnum() will not be 0 since an error has occurred when close_all tried to close a file when none was opened.

CLEARING ERRNUM()

As mentioned above once an error has occurred the value for errnum() becomes nonzero. Sometimes we need to set it to zero so we can later check it to see if any errors have occurred. For instance we could have 2 levels of error checking. If the lower level finds and error and corrects it then we want to reset errnum() so the upper level won't think there was an error it should deal with because errnum() is nonzero. To do this simply call a procedure with the ERROR prefix which does nothing so no error occurs and this will make errnum() be zero. I create a do nothing procedure to accomplish this.

```
proc cleary
   endproc
```

Now when you have the following statement in you program :

```
error cleary
```

you will set errnum() to zero and it will stay that way unless an error occurs later on.

GIVING A GENERAL ERROR MESSAGE

In a complex program it is nice to have a standard way to notify a user of errors. Part of that would include an error procedure which gives a message and gives the error number so the user can look it up. Of course it would be possible to even keep a special database of error numbers and descriptions so the correct message could be given for each error but we will use a simpler example here.

```
proc errmess;m$
   if errnum()
      print at 23,0;tab 80;at 23,1;
      print "Error ";errnum();" during ";m$;
      input ".Press <ENTER> : ";i$
   endif
endproc
```

Notice several things about this procedure. It clears line 23 and then puts the error message there. This means you must be working in mode 0 or line 23 is out of range. The error message line consists of the error number plus a message passed to it by the calling procedure. The message must be short so everything will fit on the line. The calling procedure must take any appropriate action as this message procedure is dumb. It only gives an error message that the user must acknowledge but then returns to the calling procedure.

To illustrate the use of these procedures modify "main" to be as below, add the above error procedures, and "looker" is unchanged. All needed procedures must be present.

```
proc main
   mode 0 : error close_all :  error cleary
   print "MAIN"
   error looker
   if errnum()
      errmess;"access of flp1_"+f$
      main : stop
      endif
   print f$;" has ";count();" records"
   endproc
```

You may have to remove some of the error prefixes while you debug the program. Notice that the passed message was concatenated (+) together while the printed line can use appending (;). Passed text values must always be one long concatenated string in ARCHIVE.

ERROR MEANINGS

As you use ARCHIVE and make errors you will learn to recognize them quickly. Misspelling a procedure or variable often gives error 1 - Command not recognized or error 8 - Variable not found. Having mismatched parenthsis gives error 70 - evaluator syntax error. Calling a procedure and leaving off needed arguments gives error 2 - end of statement expected at the called procedure not where it was called so it is tricky to locate if there are many calls to it. Error 21 - File already exists has been left out of the manual.

Until next time may your errors be easily found and happy ARCHIVING!

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You are now on the Net. Look around the system. See if there are any help files for you to read. If it's a menu-based host system, choose different options just to see what happens (and if all you see is a simple prompt, try typing 'help' or read on). Remember: You can't break anything. The more you play, the more comfortable you'll be.

What follows are lists of public-access Internet sites, which are computer systems that offer access to the Net. The first list is for North America; the second for the rest of the world. All offer international e-mail and Usenet (international conferences). In addition, they offer:

FTP: File-transfer protocol -- access to hundreds of file libraries (everything from computer software to historical documents to song lyrics). You'll be able to transfer these files from the Net to your own computer.

Telnet: Access to databases, computerized library card catalogs, weather reports and other information services, as well as live, online games that let you compete with players from around the world.

Additional services that may be offered include:

Lynx: An easy-to-use interface for the World-Wide Web information resource.

WAIS: Wide-area Information Server; a program that can search dozens of databases in one search.

Gopher: A program that gives you easy access to dozens of other online databases and services by making selections on a menu. You'll also be able to use these to copy text files and some programs to your mailbox.

IRC: Internet Relay Chat, a CB simulator that lets you have live keyboard chats with people around the world.

SLIP/PPP service. you'll need this if you want to interact with the internet directly on your own computer. will often cost more than standard dial-up service.

However, even on systems that do not provide all these services directly, you will be able to use a number of them through telnet (see Chapter 6).

In the lists that follow, systems that let you access services through menus are noted; otherwise assume that when you connect, you'll be dumped right into Unix (a.k.a. MS-DOS with a college degree). Several of these sites are available nationwide through national data networks such as the CompuServe Packet Network and SprintNet.

Please note that all listed charges are subject to change. Many sites require new or prospective users to log on a particular way on their first call; this list provides the name you'll

use in such cases.

1.4 NORTH AMERICAN PROVIDERS

ALABAMA
Huntsville. Nuance. Call voice number for modem number. $35 setup; $25 a month. Voice: (205) 533-4296.

ALASKA
Anchorage. University of Alaska Southeast, Tundra Services, (907) 789-1314; has local dial-in service in several other cities. $20 a month. Voice: (907) 465-6453.

ALBERTA
Edmonton. PUCNet Computer Connections, (403) 484-5640. Log on as: guest. $10 setup fee; $25 for 20 hours a month plus $6.25 an hour for access to ftp and telnet. Voice: (403)448-1901.

ARIZONA
Tucson. Data Basics, (602) 721-5887. $25 a month or $180 a year. Voice: (602) 721-1988.
Phoenix/Tucson. Internet Direct, (602) 274-9600 (Phoenix); (602) 321-9600 (Tucson). Log on as: guest. $20 a month. Voice: (602) 274-0100 (Phoenix); (602) 324-0100 (Tucson).

BRITISH COLUMBIA
Victoria Victoria Free-Net, (604) 595-2300. Menus. Access to all features requires completion of a written form. Users can "link" to other Free-Net systems in Canada and the United States. Free. Log on as: guest Voice: (604) 389-6026.

CALIFORNIA
Berkeley. Community ConneXion, (510) 549-1383. Log in as: guest. $10 a month. Voice: (510) 841-2014.
Berkeley. Holonet. Menus. For free trial, modem number is (510) 704-1058. For information or local numbers, call the voice number. $60 a year for local access, $2 an hour during offpeak hours. Voice: (510) 704-0160.
Concord/Walnut Creek. CCnet. Unix and menu. Modem number (510) 988-7140. $15 setup. Flat fee of $18 a month for unlimited usage with credit card billing. Voice: (510) 988-0680.
Cupertino. Portal. Unix and menus. (408) 725-0561 (2400 bps); (408) 973-8091 (9600/14,400 bps). $19.95 setup fee, $19.95 a month. Voice: (408) 973-9111.
Cupertino. Aimnet. (408) 366-9000 (Cupertino); (415) 610-8625 (Belmont); (510) 227-8730 (Pleasanton); (415) 288-9720 (San Francisco). $20 set-up and $20 a month; $25 set-up and $20 a month for SLIP/PPP. Voice: (408) 257-0900.
Irvine. Dial N' CERF. See under San Diego.
Los Angeles/Orange County. Kaiwan Public Access Internet, (714) 539-5726; (310) 527-7358. $15 signup; $11 a month (credit card). Voice: (714) 638-2139.
Los Angeles. Dial N' CERF. See under San Diego.
Oakland. Dial N' CERF. See under San Diego.
Pasadena. Dial N' CERF See under San Diego.
Palo Alto. Institute for Global Communications., (415) 322-0284. Unix. Local conferences on

environmental/peace issues. Log on as: new. $10 a month and $3 an hour after first hour. Voice: (415) 442-0220.
San Diego. Dial N' CERF USA, run by the California Education and Research Federation. Provides local dial-up numbers in San Diego, Los Angeles,
Oakland, Pasadena and Irvine. For more information, call voice (800) 876-CERF or (619) 534-5087. $50 setup fee; $20 a month plus $5 an hour ($3 on weekends). Voice: (800) 876-2373.
San Diego. CTS Network Services, (619) 637-3660. Log on as: help. $15 set-up fee, monthly fee of $10 to $23 depending on services used. Voice: (619) 637-3637.
San Diego. Cyberspace Station, (619) 634-1376. Unix. Log on as: guest. Charges: $10 sign-up fee; $15 a month or $60 for six months.
San Francisco. Pathways, call voice number for number. Menus. $25 setup fee; $8 a month and $3 an hour. Voice: (415) 346-4188.
San Jose. Netcom, (510) 865-9004 or 426-6610; (408) 241-9760; (415) 424-0131, up to 9600 bps. Unix or graphical interface. Log on as: guest. $15 startup fee and then $17.50 a month for unlimited use with credit-card billing; otherwise $19.50 a month. Voice: (408) 554-UNIX.
San Jose. A2i, (408) 293-9010. Log on as: guest. $20 a month; $45 for three months; $72 for six months.
Sausalito. The Whole Earth 'Lectronic Link (WELL), (415) 332-6106. Uses moderately difficult Picospan software, which is sort of a cross between Unix and a menu system. New users get a PRINTED written manual. More than 200 WELL-only conferences. Log on as: newuser. $15 a month plus $2 an hour. Access through the nationwide CompuServe Packet Network available for another $4.50 an hour. Voice: (415) 332-4335. Recorded message about the system's current status: (800) 326-8354 (continental U.S. only).

COLORADO
Colorado Springs/Denver. CNS, (719) 570-1700 (Colorado Springs); (303) 758-2656 (Denver). Local calendar listings and ski and stock reports. Users can chose between menus or Unix. Log on as: new. $35 setup fee; $2.75 an hour (minimum fee of $10 a month). Voice: (719) 592-1240.
Colorado Springs. Old Colorado City Communications, (719) 632-4111. Log on as: newuser. $25 a month. Voice: (719) 632-4848.
Denver. Denver Free-Net, (303) 270-4865. Menus. Access to all services requires completion of a written form. Users can "link" to other Free-Net systems across the country. Free. Log on as: guest.
Golden. Colorado SuperNet. Available only to Colorado residents. Local dial-in numbers available in several Colorado cities. For dial-in numbers, call the number below. $3 an hour ($1 an hour between midnight and 6 a.m.); one-time $20 sign-up fee. Voice: (303) 273-3471.

CONNECTICTUT
Middlefield. Connix, (203) 349-1176. $20 start-up fee; $2 an hour with a $10 monthly minimum or $20 a month for 20 hours a month. SLIP is $25 for 20 hours a month plus a $25 set-up fee. Voice: (203) 349-7059.

DELAWARE
Middletown. Systems Solutions, (302) 378-1881. $20 setup fee; $25 a month for full Internet access. Voice: (800) 331-1386.

FLORIDA

Broward County. SEFLIN Free-Net, (305) 357-7318. Menus. Free. Users can "link" to other Free-Net systems. Voice: (305) 357-7318.

Clearwater. Intelligence Network Online. Call voice number for modem number. $29 set-up fee; $29 a month. Voice: (813) 442-0114.

Deerfield Beach/Miami/Tampa/Orlando. CyberGate. $17.50 a month; $29.50 a month for 25 hours of SLIP/PPP access (plus $50 set-up fee). Voice: (305) 428-GATE or (800) NET GATE outside of 305.

Southeast Florida. Satelnet, (305) 434-7340. Follow log-in prompts to set up account. $17 a month or $60 for four months.

Tallahassee. Symnet, (904) 385-8177. Menus or Unix. $15 a month or six months for $75; SLIP for $30 set-up and $30 for 30 hours a month. Voice: (904) 385-1061.

Talahassee. Talahassee Free-Net, (904) 488-5056. Menus. Full access requires completion of a registration form. Can "link" to other Free-Net systems around the country. Voice: (904) 488-5056.

GEORGIA

Atlanta. Netcom, (303) 758-0101. See under San Jose, California, for information on rates.

ILLINOIS

Champaign. Prarienet Free-Net, (217) 255-9000. Menus. Log on as: visitor. Free for Illinois residents; $25 a year for others. Voice: (217) 244-1962.

Chicago. WorldWide Access, (312) 282-8605. Charges: $19.50 a month; $25 a month for SLIP/PPP access. Voice number: (708) 367-1870.

Chicago. MCSNet, (312) 248-0900. $25/month or $65 for three months of unlimited access; $30 for three months of access at 15 hours a month. Voice: (312) 248-UNIX.

Naperville/Hoffman Estates. XNet. (708) 983-6435 (Naperville); (708) 882-1101. $45 for three months or $75 for six months. Voice: (708) 983-6064.

Peoria. Peoria Free-Net, (309) 674-1100. Similar to Cleveland Free-Net (see Ohio, below). Users can "link" to the larger Cleveland system for access to Usenet and other services. There are also Peoria Free-Net public-access terminals in numerous area libraries, other government buildings and senior-citizen centers. Contact the number below for specific locations. Full access (including access to e-mail) requires completion of a written application. Free. Voice: (309) 677-2544.

Vernon Hills. WorldWide Access, (708) 367-1871. Charges: $19.50 a month;$25/month for SLIP/PP access. Voice number: (708) 367-1870.

INDIANA

Kokomo. Holli-Com, full net access. PPP, SLIP, UNIX SHELL and SHELL by menu. 220 hours per month for $20. $10 set-up fee. 317-883-4562 voice.

MARYLAND

Baltimore. Digital Express, (410) 766-1855; (301) 220-0462; (714) 377-9784. Log on as: new. $20 setup fee; $25 a month or $250 a year. Voice: (800 969-9090.

Baltimore. Clarknet, (410) 730-9786; (410) 995-0271; (301) 596-1626; (301) 854-0446. Log

on as: guest. $23 a month, $126 for six months or $228 a year. Voice: (410) 730-9765.

MASSACHUSETTS
Bedford. The Internet Access Company, (617) 275-0331. To log on, follow on-line prompts. $20 setup fee; $19.50 a month. Voice: (617) 275-2221.
Brookline. The World, (617) 739-9753. Log on as: new. $5 a month plus $2 an hour or $20 for 20 hours a month. Also has local dial-up numbers in Lowell and Westboro. Available nationwide through the CompuServe Packet Network for another $5.60 an hour. Voice: (617) 739-0202.
Lynn. North Shore Access, (617) 593-4557. Log on as: new. $10 for 10 hours a month; $1 an hour after that. Voice: (617) 593-3110.
Shrewsbury/Worcester. NovaLink, (508) 754-4009. Log on as: info. $12.95 sign-up (includes first two hours); $9.95 a month (includes five daytime hours), $1.80 an hour after that. Voice: (800) 274-2814.

MICHIGAN
Ann Arbor. MSEN. Call voice number for dial-in number. Unix. Charges: $20 setup; $20 a month. Voice: (313) 998-4562.
Ann Arbor. Michnet. Has local dial-in numbers in several Michigan numbers. For local numbers, call voice number below. $35 a month plus one-time $40 sign-up fee. Additional network fees for access through non-Michnet numbers. Voice: (313) 764-9430.

MISSOURI
Springfield. Ozarks Regional Information Online Network, (417) 864-6100. Log on as: guest. Local conferences and information, access to many Internet resources and to other Free-Net sites in the U.S. and Canada.Complete access requires completion of written registration form. Free. Voice: (417) 837-5050, ext. 15.

NEVADA
Las Vegas. Evergreen Internet Express. For modem number, call voice number below. $240 a year unlimited access; $360 a year for unlimited SLIP/PPP access. Voice: (702) 361-2258.
Las Vegas. @wizard.com, (702) 871-3102. Menus or Unix. $14.95 set-up fee, $25 a month. Voice: (702) 871-4461.

NEWFOUNDLAND
St.John's. Compusult Limited. Call voice number for modem number. $24.95 a month for 25 hours access; $3 an hour for each additional hour. SLIP/PPP access: $50 set-up fee; $24.95 a month. Voice (709) 745-7914; Fax: (709) 745-7927.

NEW HAMPSHIRE
Manchester. MV Communications, Inc. For local dial-up numbers call voice line below. $5 a month mininum plus variable hourly rates depending on services used. Voice: (603) 429-2223.

NEW JERSEY
New Brunswick. Digital Express, (908) 937-9481. Log on as: new. $20 setup fee; $25 a month or $250 a year. Voice: (800) 969-9090.
Wyckoff. NIC. Call voice number for modem number. Menus or Unix. $10 set-up fee, $10 a

month for 20 hours or $20 a month for 60 hours. Voice: (201) 934-1445.

NEW YORK

Buffalo. Buffalo Free-Net, (716) 645-3085. Log on as: visitor. Local conferences and information, access to many Internet resources and to other Free-Net sites in the U.S. and Canada. Complete access requires completion of written registration form. Free.

New York. Panix, (212) 787-3100. Unix or menus. Log on as: newuser. $40 setup fee; $19 a month or $208 a year. Voice: (212) 877-4854.

New York. Echo, (212) 989-8411. Unix, but with local conferencing software. Log on as: newuser. $19.95 ($13.75 students and seniors) a month. Voice: (212) 255-3839.

New York. MindVox, (212) 989-4141. Local conferences. Log on as: guest. $10 setup fee for non-credit-card accounts; $15 a month. Voice: (212) 989-2418.

New York. Pipeline, (212) 267-8606 (9600 bps and higher); (212) 267-7341 (2400 bps). Offers graphical interface for Windows for $90. Log on as: guest. $20 a month and $2 an hour after first 20 hours or $35 a month unlimited hours. Voice: (212) 267-3636.

New York. Maestro, (212) 240-9700. Log on as: newuser. $12 a month or $140 a year. Voice: (212) 240-9600.

New York. Interport Communications, (212) 989-1258. Log on as: newuser. $25 a month for 60 hours a month. Voice: (212) 989-1128.

Rockland County. TZ-Link, (914) 353-4618, Menus or Unix. Log in as guest with a password of: guest. $36 a quarter. Voice: (914) 353-5443.

Rye. WestNet Internet Services, (914) 967-7802. Log in as: new. $45 a quarter; $150 a year. Voice: (914) 967-7816.

White Plains. Cloud 9 Internet, (914) 682-0384. Menus or Unix. $45 a quarter or $180 a year; #90 a quarter or $360 a year for SLIP. Voice: (914)682-0626.

NORTH CAROLINA

Charlotte. Vnet Internet Access, (704) 347-8839; (919) 406-1544. Log on as: new. $25 a month. Voice: (704) 374-0779.

Raleigh. NandO Net. Call voice number for modem number. Menus. Access to archives of the Raleigh News and Observer. $30 a month, for up to five accounts per household. Voice: (919) 836-2808.

Triangle Research Park. Rock Concert Net. Call number below for local modem numbers in various North Carolina cities. $30 a month; one-time $50 sign-up fee. Voice: (919) 248-1999.

OHIO

Cleveland. Cleveland Free-Net, (216) 368-3888. Ohio and US Supreme Court decisions, historical documents, many local conferences. Full access (including access to e-mail) requires completion of a written application. Free. Voice: (216) 368-8737.

Cleveland. Wariat, (216) 481-9436. Unix or menus. $20 setup fee; $35 a month. Voice: (216) 481-9428.

Dayton. Freelance Systems Programming, (513) 258-7745. $20 setup fee; $1 an hour. Voice: (513) 254-7246.

Lorain. Lorain County Free-Net, (216) 233-5929. Users can "link" to the larger Cleveland Free-Net for additional services. Full access (including access to e-mail) requires completion of a written application. Free. Voice: (216) 366-4200.

Medina. Medina Free-Net, (216) 723-6732, 225-6732 or 335-6732. Users can "link" to the

larger Cleveland Free-Net for additional services. Full access (including access to e-mail) requires completion of a written application. Free.
Youngstown. Youngstown Free-Net, (216) 742-3072. Users can "link" to the Cleveland system for services not found locally. Full access (including access to e-mail) requires completion of a written application. Free.

ONTARIO
Ottawa. National Capital Freenet, (613) 564-3600. Menus. Free, but requires completion of a written form for access to all services. Voice: (613) 788-3947.
Toronto. Internex Online, (416) 363-3783. Both Unix and menus. $40 a year for one hour a day. Voice: (416) 363-8676.
Toronto. The Wire. Graphical interface. Call (416) 214-WIRE for rates and dial-in number.

OREGON
Portland. Agora, (503) 293-1772 (2400 bps), (503) 293-2059 (9600 bps or higher). Log on as: apply. $6 a month for one hour per day.
Portland. Teleport, (503) 220-0636 (2400 bps); (503) 220-1016 (9600 and higher). Log on as: new. $10 a month for one hour per day. Voice: (503) 223-4245.

PENNSYLVANIA
Pittsburgh. Telerama, (412) 481-5302. $6 for 10 hours a month, 60 cents for each additional hour. Voice: (412) 481-3505.

QUEBEC
Montreal. Communications Accessibles Montreal. To start account, call voice number. $25 month plus tax for 10 hours a week. Voice: (514) 288-2581.

RHODE ISLAND
East Greenwich. IDS World Network, (401) 884-9002. In addition to Usenet, has conferences from the Fidonet and RIME networks. $10 a month; $50 for six months; $100 for a year.
Providence/Seekonk. Anomaly, (401) 331-3706. $125 for six months or $200 a year. Educational rate of $75 for six months or $125 a year. Voice: (401) 273-4669.

TEXAS
Austin. RealTime Communications, (512) 459-4391. Log on as: new. $80 for six months. Voice: (512) 206-3800.
Dallas. Texas Metronet, (214) 705-2901; (817) 261-1127. Log on as: info or signup. $10 to $35 setup fee, depending on service; $10 to $45 a month, depending on service. Voice: (214) 705-2900 or (817) 543-8756.
Houston. The Black Box, (713) 480-2686. $21.65 a month. Voice: (713) 480-2684.

UTAH
Salt Lake City. XMission, (801) 539-0900 Voice: (801) 539-0852. Menu and Unix. CSLIP/PPP usage no extra charge. $5 for the first month; $19 a month after that; $102 for six months.

VIRGINIA
Norfolk/Peninsula. Wyvern Technologies, (804) 627-1828 (Norfolk); (804) 886-0662

(Peninsula). $10 startup fee; $15 a month or $144 a year. Voice: (804) 622-4289.
Williamsburg. Global Connect. For modem number, call voice number below. Menus or Unix. $15 a month or $150 a year for 40 hours per month; $40 a month or $400 a year for 70 hours of SLIP/PPP access a month. Voice: (804) 229-4484.

WASHINGTON, DC
The Meta Network. Call voice number below for local dial-in numbers. Caucus conferencing, menus. $15 setup fee; $20 a month. Voice: (703) 243-6622.
CapAccess, (202), 785-1523. Log on as guest with a password of visitor. A Free-Net system (see under Cleveland, Ohio, for information). Free. Voice: (202) 994-4245. See also: listing under Baltimore, MD for Digital Express and Clarknet, both of which have Washington, DC numbers.

WASHINGTON STATE
Seattle. Halcyon, (206) 382-6245. Users can choose between menus and Unix. Log on as: new. $10 setup fee; $60 a quarter or $200 a year. Voice: (206) 955-1050.
Seattle. Eskimo North, (206) 367-3837 (all speeds), (206) 362-6731 (9600/14.4K bps). $10 a month or $96 a year. Voice: (206) 367-7457.
Seattle. Seattle Community Network, (206) 386-4140. Log on as: visitor. Local conferences and information, access to many Internet resources and to other Free-Net sites in the U.S. and Canada. Complete access requires completion of written registration form. Free.

GERMANY
Erlangen-Nuernburg. Free-Net Erlangen-Nuernburg, 09131-85-8111. Log on as: guest. Local conferences and information, access to many Internet resources and to other Free-Net sites in the U.S. and Canada. German and English menus. Complete access requires completion of written registration form, 2DM registration fee. Voice: 09131-85-2693.

ITALY
Milan. Galactica, 02/29.00.60.58 (up to 2400 bps); 02/29.00.60.91 (up to 14.4 Kbps). 24.000 lire/month; 71.400/three months; 178.500/year, including IVA. Voice: 02/29.00.61.50
Milan. Agora, (02) 48403680 (see under Rome).
Pavia. Telnet, 0382 529121. Voice: 0382 529751.
Rome. Agora, (06) 69920412, (06) 6990532 and (06) 69200112. Also available via ITAPAC: NUA 26430303, 26420265 (1200 bps). Voice: 06 6991742/3
Rome. MC-link Technimedia Srl, (06) 4180440 and (06) 4513900.ITAPAC: NUA 26410420. 216.000 lire per year or 72.000 lire per quarter. Voice: 06 418921.

UNITED KINGDOM
London. Demon Internet Systems, 44 (0)81 343 4848. 12.50 pounds setup fee; 10 a month or 132.50 a year. Voice: 44 (0)81 349 0063.

1.6 IF YOUR TOWN HAS NO DIRECT ACCESS

If you don't live in an area with a public-access site, you'll still be able to connect to the Net. Several services offer access through national data networks such as the CompuServe Packet Network and SprintNet, which have dozens, even hundreds of local dial-in numbers across the

country. These include Holonet in Berkeley, Calf., Portal in Cupertino, Calf., the WELL in Sausalito, Calf., Dial 'N CERF in San Diego, Calf., the World in Brookline, Mass., and Michnet in Ann Arbor, Mich. Dial 'N CERF offers access through an 800 number. Expect to pay from $2 to $12 an hour to use these networks, above each provider's basic charges. The exact amount depends on the network, time of day and type of modem you use. For more information, contact the above services.

Four other providers deliver Net access to users across the country:

Delphi, based in Cambridge, Mass., is a consumer-oriented network much like CompuServe or America Online -- only it now offers subscribers access to Internet services. Delphi charges $3 a month for Internet access, in addition to standard charges. These are $10 a month for four hours of off-peak (non-working hours) access a month and $4 an hour for each additional hour or $20 for 20 hours of access a month and $1.80 an hour for each additional hour. For more information, call (800) 695-4005.

BIX (the Byte Information Exchange) offers FTP, Telnet and e-mail access to the Internet as part of their basic service. Owned by the same company as Delphi, it also offers 20 hours of access a month for $20. For more information, call (800) 695-4775.

PSI, based in Reston, Va., provides nationwide access to Internet services through scores of local dial-in numbers to owners of IBM and compatible computers. PSILink. which includes access to e-mail, Usenet and ftp, costs $29 a month, plus a one-time $19 registration fee. Special software is required, but is available free from PSI. PSI's Global Dialup Service provides access to telnet for $39 a month plus a one-time $39 set-up fee. For more information, call (800) 82PSI82 or (703) 620-6651.

NovX Systems Integration, based in Seattle, Washington, offers full Internet access through an 800 number reachable across the United States. There is a $24.95 setup fee, in addition to a monthly fee of $19.95 and a $10.5 hourly charge. For more information, call (206) 447-0800. *Editors Note: Since this article was writen, Compuserve, America On-Line and Prodigy have offered expanded access to the Internet.*

1.7 NET ORIGINS

In the 1960s, researchers began experimenting with linking computers to each other and to people through telephone hook-ups, using funds from the U.S Defense Department's Advanced Research Projects Agency (ARPA).

ARPA wanted to see if computers in different locations could be linked using a new technology known as packet switching. This technology, in which data meant for another location is broken up into little pieces, each with its own "forwarding address" had the promise of letting several users share just one communications line. Just as important, from ARPA's viewpoint, was that this allowed for creation of networks that could automatically route data around downed circuits or computers. ARPA's goal was not the creation of today's international computer-using community, but development of a data network that could survive a nuclear attack.

Previous computer networking efforts had required a line between each computer on the network, sort of like a one-track train route. The packet system allowed for creation of a data highway, in which large numbers of vehicles could essentially share the same lane. Each packet was given the computer equivalent of a map and a time stamp, so that it could be sent to the right destination, where it would then be reassembled into a message the computer or a human could use.

This system allowed computers to share data and the researchers to exchange electronic mail, or e-mail. In itself, e-mail was something of a revolution, offering the ability to send detailed letters at the speed of a phone call.

As this system, known as ARPANet, grew, some enterprising college students (and one in high school) developed a way to use it to conduct online conferences. These started as science-oriented discussions, but they soon branched out into virtually every other field, as people recognized the power of being able to "talk" to hundreds, or even thousands, of people around the country.

In the 1970s, ARPA helped support the development of rules, or protocols, for transferring data between different types of computer networks. These "internet" (from "internetworking") protocols made it possible to develop the worldwide Net we have today that links all sorts of computers across national boundaries. By the close of the 1970s, links developed between ARPANet and counterparts in other countries. The world was now tied together in a computer web.

In the 1980s, this network of networks, which became known collectively as the Internet, expanded at a phenomenal rate. Hundreds, then thousands, of colleges, research companies and government agencies began to connect their computers to this worldwide Net. Some enterprising hobbyists and companies unwilling to pay the high costs of Internet access (or unable to meet stringent government regulations for access) learned how to link their own systems to the Internet, even if "only" for e-mail and conferences. Some of these systems began offering access to the public. Now anybody with a computer and modem, persistance and a small amount of money -- and persistence -- could tap into the world.

In the 1990s, the Net continues to grow at exponential rates. Some estimates are that the volume of messages transferred through the Net grows 20 percent a month. In response, government and other users have tried in recent years to expand the Net itself. Once, the main Net "backbone" in the U.S. moved data at 56,000 bits per second. That proved too slow for the ever increasing amounts of data being sent over it, and in recent years the maximum speed was increased to 1.5 million and then 45 million bits per second. Even before the Net was able to reach that latter speed, however, Net experts were already figuring out ways to pump data at speeds of up to 2 billion bits per second -- fast enough to send the entire Encyclopedia Britannica across the country in just one or two seconds. Another major change has been the development of commercial services that provide internetworking services at speeds comparable to those of the government system. In fact, what started as a government experiment is now largely a private enterprise.

The QUANTA Library has expanded again, as well as missing shipments made up for. PLEASE compare this list with your copy of the Library. Any differences should point to those disks that you might wish to get or update.
(some 44 disks affected with this Aug. 1995 listing)

Disk Name	Contents	Free Sectors	History
CD 01	(Computer aided Design)	312	
CT 01	(Communications/Transfer)	39	revised Aug 95
CT 02	(a BBS program)	429	revised Aug 95
DE 01	(Commercial Demonstrations)	6	revised Aug 95
DE 02		63	revised Aug 95
DE 03		30	revised Aug 95
DE 04		114	revised Jun 93
DE 05		75	revised Aug 95
DE 06		81	New Aug 95
DE 07		33	New Aug 93
DE 08		891	revised Aug 95
DE 09		90	New Aug 93
ED 01	(EDucational)	321	revised Aug 95
EM 01	(micro EMacs V3.9p SOURCE FILES)	3	Dec 92
EM 02	(Run version. NON-SOURCE + new doc's)	18	
EM 03	(Pointer driven version)	1155	New May 94
GG 01	(General Games)	72	revised Aug 95
GG 02		231	revised Aug 95
GG 03		675	revised Dec 92
GG 04		54	New May 94
GR 01	(GRaphics programs)	231	
GR 02		273	revised May 94
GR 03		75	revised Aug 95
GR 04		192	New Apr 95
GS 01	(Games advent/Strategy)	108	
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GS 04		468	revised Feb 92
GS 05		756	New Aug 93
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JM 01	(revised JM 1 disassembly)	45	
JM 02	(revised JM 2 disassembly)	225	
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LA 01	(computer LAnguages)	78	revised Aug 95
LG 01	(Library Guide)	864	revised Aug 95
MA 01	(MAths, etc)	162	revised Aug 95
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MD 01	(Misc & Demonstration)	420	revised Aug 95
MD 02		87	New Nov 90
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MF 01	(Mandelbrot and Fractal programs)	138	revised Nov 90
MF 02		12	New Nov 90
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PF 01..... (Printer utilities & Fonts).....	243	
PF 02.....	222	
PF 03.....	372	revised Jun 95
PF 04.....	990	revised Aug 95
PF 05.....	1053	New Jun 95
PS 01..... (PSion utilities etc).....	12	revised Aug 95
PS 02.....	297	revised Jun 95
PS 03.....	315	revised Aug 95
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PS 05.....	228	revised Aug 95
PS 06.....	504	New Mar 95
SP 01..... (Specialist programs).....	9	revised Aug 95
SP 02.....	147	revised Aug 95
SP 03.....	201	revised Aug 95
SP 04.....	315	New Nov 90
SP 05.....	333	New May 94
SP 06.....	219	revised Aug 95
SP 07.....	411	revised May 94
SP 08.....	39	revised May 94
SP 09.....	327	New Aug 95
SP 10.....	0	New Aug 93
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UG 03.....	90	revised Aug 95
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UG 05.....	69	New Nov 92
UG 06.....	177	revised Aug 95
UG 07.....	198	revised Aug 95
UG 08.....	633	revised Aug 95
UG 09.....	207	New May 94
UG 10.....	318	revised Aug 95
UG 11.....	210	New May 94
UG 12.....	342	revised Aug 95
UG 13.....	699	New Aug 95
UT 01..... (Utilities machine-code and Toolkits).....	201	
UT 02.....	360	revised Aug 95

QUANTA members may get any of these disks by sending a formatted disk for each disk requested, enough funds to cover return postage, and proof of QUANTA membership to the U.S. Sub-Librarian.
If you wish, I can provide disks at a cost of $.50 per disk.
Order 3 or more disks and postage is free.
Of course, any questions, you may call me at 1-317-291-6002.
Paul Holmgren
5231 Wilton Wood Ct.
Indianapolis, IN. 46254

Sinclair On the Net

By Tim Swenson

Here are some of the more interesting info I've pulled off the Internet in the past couple of months.

EMULATE!, the Spectrum emulator magazine, came out back in Sept. with it's first issue. The main version of EMULATE! came with a number of Spectrum Snaps. The magazine comes out in electronic form only and not in hard copy. The editor is Barry Plewa (doctor@docbarry.demon.co.uk). The first issue covered: Playing tips, Free game instructions, Adventure Games, Reviews, Classic Spectrum Characters, History of Sinclair (Part 1), Spectrum Games Charts (Past & Present), and A-Z of Spectrum Games Reviews (Part 1). Issue number 2 should be out in October. Since it's early October as I write this, I assume it will be late October before it's out. EMULATE! is available on most major Spectrum FTP sites (a good one is ftp.nvg.unit.no).

Marco Vacquier put out some news from the Eindhoven show held on the 2nd of Sept. He says that Stuart Honeyball announced that the QXL, Super Gold, and Gold cards are out of production and that Miracle & Jochem Merz are both out of QXL cards. There is a card called the QXL Goldcard that will let you use a (Super) Goldcard to a PC like a QXL. Price should be about 100 pounds. As for Masterpiece, the SVGA card, it is still in the works.

TF Services has halted shipping of the SuperHermes. It's got a few bugs in the PIC chip that need to be ironed out.

Stephen Smith (stevo@jonlan.demon.co.uk) has created the Spectrum Games Database and placed in on his Web page:

http://www.catalog.com/sjr/www/ss/gamesdbs.htm

The Games Database is designed to include as many Spectrum Games in Snap format. Besides each game, it will include the instructions for each game, past reviews of each game, and a gif file of the opening screen. The database will be uploaded to the major Spectrum FTP sites (see above for an example).

Martin van der Zwan is working on a ZX81 magazine. I have yet to see it yet, but Martin sounds like it will be out sometime soon. I think he is having a problem getting article submissions (a perenial problem). Martin can be reached at:

Martin nad der Zwan
Moerweg 508
2531 BL Den Haag
Netherlands

From the rumor mill, Damion Yates heard that the C5 was named that way because in Z80 opcode, C5 is 'push bc', which sounds or looks like 'push bike.' My Z80 opcode is rusty (although I do remember that 'ret' is C9). Anybody want to confirm the opcode?

Is there a QXL in Your Life?

by Al Feng

I want to begin by saying that if I didn't already own a QXL, I would contact MECHANICAL AFFINITY as-soon-as-possible to reserve one -- of course, that supposes that they still have any in stock.

For those not familiar with the QXL, it is an 8/16 bit PC-expansion card which uses a 20 mHz 68EC040 microprocessor whose operating system [SMSQ] emulates the Sinclair's QL computer's QDOS operating system. The QL's SuperBASIC has been superseded by the QXL's SBASIC. A PClone is the host which shares its I/O devices with the QXL card.

IT ISN'T PERFECT

There are still some operating system quirks that need to be worked out, or at least noted for the user *[caveat emptor]*.

Briefly, there appear to be three remaining problems:

1) small screen size
2) quirky WIN()_
3) TURBO compiler doesn't work

I have learned to "live" with these problems; but, you may feel that they are too significant to overlook.

On a standard 14" VGA monitor, the viewable area measures 9.5" diagonally; or, about 80% of the usable screen (12" diagonally). This is a bit small, but it provided unexpected "practice" for reading the bottom line of the eye test chart the last time I had my eyes checked!

There may be a way to resolve this; but, I don't know what it is.

The main problems with the WIN()_ partitions is due to the dearth of documentation. If you have only one DOS partition, then you can only have WIN1_. If you have eight DOS partitions, you can have up to eight SMSQ WIN()_ partitions.

At the present time, SMSQ seems to "grab" a huge chunk of each partition for its own housekeeping. STATing my WIN1_ drive which reads as "FULL" returns "6440/10240":

10240	5.000 meg	formatted size
6440	3.144 meg	reserved for SMSQ?
3800	1.855 meg	available to user?

In retrospect, this isn't surprising; but, it means that you may have less FREE SPACE than you think. I haven't confirmed that 3.144 meg is always the memory chunk reserved for WIN_housekeeping.

I have also found that if you decide to re-format to a different size that you need to exit to DOS and delete the "old" QXL.WIN file on the related partition otherwise you may end up with something like ***51226/32768*** as a returned STAT value of a WIN()_ drive.

If you wish to continue to use the PSION programs (and, presumably many others), then you need to have already accessed that WIN()_ drive on the hard disk. This can be expedited by STATing all your WIN()_ drives from within your BOOT.

That the TURBO compiler does NOT function under SMSQ is more of an inconvenience than a major problem -- when I want to compile a program, I use my GOLD CARDed QL.

TURBO compiled programs that work under MINERVA/QDOS should work under SMSQ without any problems; so, if you don't compile your SuperBASIC programs (or, are willing to compile on a "regular" QL) then this is obviously not a consideration.

NOTE: With the understanding (?) that SMSQ/E [for the SUPER GOLD CARD and (?) ATARI] is basically the same code, this would be a reason to avoid SMSQ/E until this quirk is worked out.

BUT, I AM GLAD THAT I HAVE ONE

The QXL isn't perfect, but it is fast -- the processor is fast, the display is fast, and access to the various devices is fast. In a business environment, it certainly would work well as a FILESERVER.

Whether you should buy a QXL depends on how you use your QL and whether or not you have the necessary cash flow.

Unfortunately, MIRACLES SYSTEMS has announced that production of the QXL has ceased due to rising production costs and pending EMI radiation standards (and, the expense of the requisite testing).

Having said that, I want to editorialize by saying that it is time for QUANTA to **finally** *"step up to the plate" (an American phrase)* and use some of its significant treasury **{several thousand POUNDS STERLING as of a half dozen years ago}** and pony up the fees for the EMI radiation test mandated by the European Union EMC Directive so minimally the QXL and/or the QUBIDE IDE hard disk interface can be tested and thus ensure availability of hardware which supports the QDOS operating system.

MIRACLE has announced a "QXL GOLD" card adapter (100 BPS) which allows a SUPER/GOLD CARD to function as a QXL within a PC. *Very limited availability* due to the same possible EMI restrictions. If interested, write **MIRACLE SYSTEMS, 20 Mow Barton, Yate, Bristol, BS17 5NF, UK** with your credit card number to order. *Good luck!*

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Hours 5 to 9 PM only Tues-Sat --FAX 317-472-0783 11 PM TO 7 AM.
Internet E-mail: fdavis@holli.com

Extra! Extra! We still have QL Super Gold Cards in stock, and for only $395. By the end of the year they will no longer be produced, so now is the time to buy one. New European laws will make them no longer available from Miracle. Now or maybe never!

We also have plenty of Used QLs and QL hardware for sale at rock bottom prices. Call or write to find out what is still available on this. We are closing out all of our used items, only new (at new prices) will be available after this.

Looking for new Digital Precision programs?, such as Professional Publisher, Deluxe Font Enlarger, Adventure Creation Tool S.E., Success CPM Emulator, Super Media Manager, or Perfection Word Processor? We have a limited supply in stock at half price! Call the Peru number and ask for Frank for further details on these and more. Enhance that QL!

We have a limited number of Text87plus4.1 Word Processor Packages on closeout sale for only $95. Includes dictionary and manual. This is the latest version. We also have extras for this, such as 24 pin drivers, bubblejet, deskjet, etc. Upgrade your QL word processing.

FALL SPECIAL! Learn the ins and outs of your QL. Learn how and why it works, and how to keep it running. For a limited time you can get ***both the QL TECHNICAL GUIDE and the QL SERVICE MANUAL for only $19.*** These are new, not used!

Christmas is coming up soon (usually sooner than we thought). Really get your QL ready for the next century. ***Special combo deal of the QUBIDE (QL AT/IDE hard drive interface) and the QPLANE (powered Back Plane for the QL) for only $160.*** Subject to available stock on this offer, so act soon. All of our special offers are in this category.

QPLANE, the Powered Back Plane for the QL, now in stock. It utilises a PC Power Supply Unit to help you place your QL motherboard, drive interface, Qubide, etc. inside of a PC tower case, mini-tower case or full size desk top case. Add a Super Hermes, Falkenberg Keyboard 90 interface, or Di-Ren Keyboard interface plus an IBM style keyboard and it is all set to go. Available now, shipping and handling included, for $52.

ZX 8301 Chips for the QL, on sale for $15. ZX8302 Chips for the QL, on sale for $12. ZX 8049 Chips for the QL, on sale for $4. 68008 Chips for $3. MINERVA MK2 on sale for only $60, over $40 off regular price!

DATADESIGN, by PROGS, the best and easiest to use database program for the QL, now at 1/3 off. On Sale for only $60 till current stock is gone. A "free form" database.

PIANO by Timo Salmi

This neat little type-in program for the QL allows you to use the keyboard of your QL as if it were a piano. The sound that you get out of your QL, will of course, be limited by the built-in sound capabilities of the QL. I am sure however that you will find it fun to play with, as well as teaching you something about how the QL utilises sound. The program was taken off of the Internet, and is just one small example of what awaits there to be mined by the QL user. This also applies to other users of Sinclair computers. You may not be THE mainstream, but that should not keep you out of any of the waters.

```
100 CLEAR:aika=DATE:bon=-1
110 p_varilogo "PIANO","21.10.85"
120 :
130 n=13
140 DIM kork(2*n)
150 REMark C C#  D   D#  E   F   F#
160 DATA 77 ,72, 67 ,63, 59 , 55 ,51
170 REMark G G#  A   A#  B   C
180 DATA 47 ,44, 41 ,38, 35 , 33
190 DATA 33 ,31, 28 ,26, 24 , 22 ,20
200 DATA 18 ,17, 15 ,14, 12 , 11
210 :
220 DIM nuotti$(2*n,2)
230 DATA "C C#D D#E F F#G G#A A#B C "
240 :
250 FOR i=1 TO 2*n:READ kork(i)
260 READ a$
270 FOR i=1 TO n
280  nuotti$(i)=a$(2*i-1 TO 2*i)
290  nuotti$(n+i)=a$(2*i-1 TO 2*i)
300 END FOR i
310 :
320 vari=7:kesto=5000
330 CLS:INK vari
340 PRINT "Esc to end, tab ";"for new color"
350 PRINT"Change duration 4 ja 5"
360 PRINT"Play: Two lowest ";"keyboard rows"
370 PRINT"Octaves: 1 2" " "
380 :
390 okt = 1
400 lask=0
410 key$="zsxdcvgbhnjm,12"
420 REPeat soita
```

```
430  c$=INKEY$:IF c$="":GO TO 430
440  c=CODE(c$)
450  IF c=27:EXIT soita
460  IF c= 9:p_vari:REMark 2000
470  IF c=52:kesto=-1
480  IF c=53:kesto=5000
490  c=c$ INSTR key$
500  IF c=0 THEN GO TO 430
510  IF c>n:okt=key$(c):GO TO 430
520  k = (okt-1)*n+c
530  BEEP
540  IF bon:BEEP kesto,kork(k)
550  lask=lask+1
560  PRINT nuotti$(k);" ";
570  IF lask >=12 THEN
580   PRINT
590   lask=0
600  END IF
610 END REPeat soita
620 BEEP
630 :
640 p_valmis 0
650 STOP
660 :
2000 DEFine PROCedure p_vari
2010  SELect ON vari
2020   =7:vari=2
2030   =2:vari=4
2040   =4:vari=6
2050   =6:vari=5
2060   =5:vari=7
2070  END SELect
2080  INK vari
2090 END DEFine p_vari
2100 :
20000 DEFine PROCedure p_varilogo(ohj$,tpvm$):REMark 09.09.85
20010  LOCal pv$,vsi,v$,i,j,k,k$
20020  MODE 256
20030  OPEN#3,scr_513x256a0x0:PAPER#3,1:CLS#3:CLOSE#3
20040  WINDOW#1,448,200,32,16
20050  PAPER#1,0:INK#1,4:CLS#1
20060  CSIZE 3,1:CURSOR 224-8*10,70
20070  PRINT "Timo Salmi":INK 7
20080  CURSOR 224-8*LEN(ohj$),110
20090  FOR i=1 TO LEN(ohj$)
20100   k=0:INK 3
```

```
20110  k$="AEIOSTNHJKLMPRUVY DWXQZBCFG  "
20120  FOR j=1 TO LEN(k$):IF ohj$(i)=k$(j):k=-1:GO TO 20130
20130  IF k THEN INK 6
20140  PRINT ohj$(i);:INK 3
20150 END FOR i
20160 CSIZE 2,0
20170 CURSOR 222-6*LEN(tpvm$),90
20180 INK 1:PRINT tpvm$:INK 5
20190 pv$=DATE$:vsi=pv$(1 TO 4)
20200 AT 0,0:PRINT DAY$!DATE$
20210 INK 2:AT 19,0:INPUT("CONTINUE: PRESS ENTER?")!v$:INK 7
20220 END DEFine p_varilogo
20230 :
30000 DEFine PROCedure p_valmis (ch)
30010 REMark 13.09.85
30020 LOCal t,m,s:INK 7:FLASH 0
30030 PRINT#ch:PRINT#ch,"READY, elapsed";
30040 s=DATE-aika
30050 t=INT(s/3600):s=s-t*3600
30060 m=INT(s/60):s=s-60*m
30070 IF t>0 THEN PRINT#ch,!t!"h";
30080 IF m>0 THEN PRINT#ch,!m!"min";
30090 PRINT#ch,!s!"sec"
30100 END DEFine p_valmis
30110 :
31990 STOP
32000 resave 1:STOP
32010 resave 2:STOP
32020 DEFine PROCedure resave (dr)
32030 LOCal a$:a$="piano"
32040 IF dr=1:a$="ram1_"&a$
32050 IF dr=2:a$="ram2_"&a$
32060 DELETE a$:SAVE a$
32070 PRINT#0,"Saved"!a$
32080 END DEFine
```

Have fun with this! Anyone of our readers who has programs like this to contribute, please do so. Best is if they were written by you....but we will not turn down some non-copy righted material that you pick up out of a magazine, newsletter, BBS or the Internet. Take time to share such items with all of us. What may seem old and familiar to you will always find someone else to whom it is brand new. Just one little reminder...it must be non-copy righted, unless you are either the author, or we also receive written permission from the author to use.

A Review of *Z88 MAGIC*
by Alicia Morrow

I made a recent book purchase to help me become more familiar with my Z88 in the form of a book called Z88 MAGIC. The book was written by Vic Gerhardi, Gill Gerhardhi, and Andy Berry. Vic and Andy are the owners of the U.K. computer company called Rakewell Computers. This is a company that has serviced and sold Z88 Computers for years. What particularly qualified them was that the main thrust of the book came from a course on the Z88 that the company taught. Gill is the wife of Vic, and until drafted to help write this book, she would have told you she was just an average user. Her talent at writing and understanding came through to the point that I suspect she was the main writer.

I have owned several books or booklets on the Z88. The best, in its own category of hardware details and sources for all things dealing with the Z88 (or ZED as we say in the U.K.) was the Z88 Source Book, from Update Magazine in the States. Another set of booklets I found useful were the two manuals from Domino Cubes in the USA. They are poorly organized and lack style, and yet if you take the time to read them thoroughly, they do contain much useful information about the Z88 not found easily elsewhere. For all of the things that were left out of the ZED manual on the use of the built-in software of the Z88 and using it with other computers I think that the prize has to go to Z88 MAGIC. Now allow me to tell you why. This will of course be followed by any bad points I wish to make on the book.

The book comes in the same size of the original Z88 manual, so it should fit easily in the plastic case the ZED came in, and it is 322 pages long. It is available from Mechanical Affinity in the USA (where I got mine, for $25), and I have since found it is available on this side of the pond from both Bill Richardson and from Rakewell Computers (check with them on price in pounds). It is a soft cover and for the sake of durability I do so wish it had come in a hard cover (leather would have been ideal!).

I had had a wee bit of a problem with wanting to take some programs off of a 256K EPROM, in order to place them on 32K EPROMS. Perhaps it was in the manual on how to do so, but not plainly stated so as I could tell. I checked the index in Z88 MAGIC and the table of contents and found out how to do so in only a few paragraphs. What makes this book so good to me is the simplicity with which it tells you A. What to do B. What to expect from the machine C. Exactly what you will see displayed on your ZED as you do so. It does all this in simple to read and understand English. I found I could accomplish my task. The book also told me things you can not do, such as *you can not load files directly from EPROM into an application, you have to fetch them (and it tells you how to do so).* I found that knowing what you may not do with the ZED just as useful as what you can do. It saves a lot of effort and tears.

Those of us who have used the ZED with EPROM will all recall the shock that the screen goes through when doing so. I tried to stop it as I thought it was ruining the computer the first time I saw the screen go crazy. Had I had this book then I would have been able to relax knowing all was as it should be.

It also has a section on using BBC Basic, which comes built-in to every ZED. This

has far more than is in the Z88 Manual, but not quite all that a novice to the BASIC language will need to get proficient. For myself, having played with the Basic on my Speccy over the years, it was enough to get me going on writing a few applications of my own. As I had never owned or used the QL I had never run into PROcedures or PARameters till I decided to do some programming in BBC Basic. Within less than five pages in this book and I knew what they were and had enough information to go off experimenting. I am sure that it would do us all even more good to find and study a large tome *(book)* on BBC Basic, but till then this by far beats and adds to what came in the original manual. Check with Rakewells for more information on ZED books on BBC Basic, etc.

Not all of the book is devoted to the built-in applications. Things I found out that were never clearly spelled out to me in other books I had about the ZED: Did you know what to do when the batteries start to go dead and the machine warns you to change them? Well.... if you have just a basic computer I knew that you had three minutes to get the old batteries out and the new ones firmly in place without loss of data. Now if you have one RAM pack the time reduces to one minute, and with two RAM packs you have only 30 seconds. You best be fleet of finger and well organized as you undertake the changing of batteries. I also found out that EPROMS take no power off of the batteries except when they are being accessed for data or programmed. Now if you have fitted a third RAM into slot three the power loss really goes up. This is why it is not suggested by the dealers. It really is best to use it (slot three) for EPROM only, or change batteries more often. I learned all of this from my new book, Z88 MAGIC.

The book also covers how to use the built-in terminal program in the ZED to make it act as a VT52 terminal for use with a modem or to comm with another computer, such as a MAC or IBM (sad to say it does not cover the use with my steadfast friends, my Atari ST and my Amiga 1200, but I got some programs from Mechanical Affinity that allowed me to use the PCLink program for these computers). Mr. Davis of Mechanical Affinity also helped me get my ZED on the Internet with a comm program that has allowed me to access a SHELL account with my local Internet provider. There I have found a few sites that support the Z88, as well as some programs there for the taking. Those of us who use the Z88 should perhaps support this practice and put the other fruits of our labors on BBSs and the Internet.

One last item I did not care for on the book was the price. It was more than I wish, yet worth the price. I guess when you have only relatively small runs of a book the price is not cheap. If we had a few million more users the price would drop. Bye for now. Perhaps they will let me write to you again, if you wish. There are other books on the Z88 and on the Spectrum I would just go into a tizzy to review for you. Perhaps it comes from all those years of mine as a school teacher and having my students write book reviews. Now that I am retired I have finally got the time to read and do useful things with my computers. I will do my best to remain objective in any review that I do. If this is something you would like to see, give the good folks at UPDATE a note or call and I will be glad to give out more clues on computing as I find them.

Alicia Morrow

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